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THE PREVENTION AND CONTROL OF DIPHTHERIA.*

BY BÉLA SCHICK,
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MODERN medicine has undertaken not only to cure but also to prevent diseases, and prophylaxis is, therefore, its special problem. However, medical science cannot always fulfill this ideal requirement in spite of numerous advances. In addition to smallpox vaccination which has been such a wonderful blessing to mankind in giving a definite immunity against smallpox, there are a number of other infectious diseases that we can successfully control. One of these diseases is diphtheria. We can state today with conviction that, with the proper employment of the measures recommended by us, we can fight against diphtheria just as successfully as we have been able to fight against smallpox. Even though the virulence of diphtheria has by far never reached the intensity that we know of in connection with smallpox, yet we are all aware that diphtheria has its own serious dangers. In spite of the many brilliant results of serum therapy in this disease, it still belongs to those infections that carry off many victims. From time to time the mild cases of diphtheria predominate, as for instance in Vienna today, yet we must remember that waves of a more severe type of infection will return.

We must also not forget that for the general population it is not only important to eliminate the fatal cases, but also to prevent the development of the disease at all. For the disease not only damages the human organism, but also involves economic loss, since the treatment of these cases in hospitals is often expensive, and even when they are treated at home it frequently means a considerable outlay.

I mentioned that we are convinced that we are now able to successfully control diphtheria. The incitant germ and its toxin have been known for a long time, and we are able to measure with great accuracy the strength of the toxin and its antitoxin. Furthermore, we have known for some time that the disease does not necessarily develop in healthy individuals who have diphtheria bacilli on the mucous membrane of their naso-pharyngeal passages, and we are certain that the reason for this lies in the absence of susceptibility to the disease.

Soon after the discovery of the diphtheria bacillus and its toxin and antitoxin various authors have been able to demonstrate that an increasing number of human beings show with advancing years the presence of antitoxin in their blood serum. It was possible to state definitely that the presence of such antibodies would prevent the development of diphtheria, while their absence indicated a susceptibility to the disease. This fact was of great importance for the pathogenesis of diphtheria. It could not, however, gain the practical significance which belongs to it, as the demonstration of the protective antibodies was too difficult.

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*The Cutter Lecture in Preventive Medicine, given at the Harvard Medical School, February 8, 1923.

It was necessary to obtain the serum of the individuals to be tested, to mix it with toxin *in vitro* and test it in a suitable animal such as the guinea-pig. In the first examinations only larger amounts of antitoxin could be demonstrated, as it was necessary to prevent the death of the animal. This method was subsequently greatly improved by Marx and Römer. Marx used the subcutaneous and Römer the intracutaneous method. With both methods only the local reaction was observed, which could be produced, therefore, with smaller amounts of toxin and small amounts of antitoxin could be proved. But even with these two methods it was necessary to make the determinations in the animal. For the rational attack and control of diphtheria we need simpler methods, in order to determine whether a human being is susceptible or immune to diphtheria. For if an individual had protective antibodies against diphtheria he was immune and we could leave him safely alone. On the other hand, the susceptible individuals should be treated and protected.

It seemed to us that the direct injection in the human being would be the most suitable way to determine whether he has or has not antitoxic antibodies. The foundation for these studies lay in the experiments of v. Pirquet on serum disease, vaccination and the tuberculin reaction. It was von Pirquet, as you know, who first introduced the cutaneous method in medicine. I was able to demonstrate that it is possible to produce cutaneous and intracutaneous reactions with diphtheria toxin in individuals, who had no antitoxin; for producing intracutaneous reactions we need 1/50 of the fatal dose per 250 g. guinea-pig.

A series of individuals gave no reaction to the intracutaneous injection of this amount of toxin. Examination proved that such children invariably had antitoxin in their blood serum. Through the direct injection it was generally possible to demonstrate in 48-72 hours whether a human being was susceptible to diphtheria or not. A positive reaction indicated susceptibility or absence of antitoxin; a negative reaction shows the presence of at least 0.01 unit of antitoxin in 1 cc. of serum, an amount of antitoxin which is certainly sufficient to protect against diphtheria. With this method we were able to revise the age susceptibility of children to diphtheria which was previously based only upon a small number of children. Not only we and Goves and Knuasby but other authors, among them especially Park and Zingher, could thus determine for each age period the number of individuals who were susceptible to diphtheria. Among adults and the newborn nearly 85 per cent. show antitoxic substances in their blood serum. The antitoxin of the newborn is derived from the mother. Within the first year of life the number of protected individuals diminishes and reaches at the end of the first year scarcely 30 per cent. This diminished protection against diphtheria continues until the sixth and seventh year. From then on we can notice a definite increase in the number of negative reactions, which reach about 85 per cent. at the age of 16 years. This fact experimentally observed, fully corresponds with the clinical observation that it is just the age period between the second and sixth years of life which shows the largest number of clinical cases of diphtheria. A further proof that the result of the test indicates not only the presence or absence of antitoxic antibodies, but real immunity or susceptibility to diphtheria, was obtained by finding that every child with diphtheria gave a positive reaction when tested with the diphtheria toxin solution before the administration of antitoxin. This group, in other words, had no antitoxic substances. Repeated experience has shown us that the negative reaction excludes the possibility of an attack of diphtheria. We are, therefore, able to determine in doubtful diphtheria-like cases from the negative result of the test that the disease in question is not diphtheria. It is important to state that in such cases diphtheria bacilli may be present in the exudate, but play only the rôle of saprophytes. It follows, therefore, that we can no longer be satisfied to make a scientific diagnosis in doubtful cases of diphtheria only by proving the presence of diphtheria bacilli. We must demand today the proof that the individual has no antitoxic antibodies against diphtheria toxin. To avoid any misunderstanding, however, I wish to emphasize distinctly that such proof is not necessary for the diagnosis of diphtheria by the general practitioner. He should treat, just as he has up to the present time, every diphtheria-like disease as if it were a definitely established attack of diphtheria; that is, he should immediately inject antitoxin. I would like, however, to draw your attention especially to the fact that there are diphtheria-like processes which are not diphtheria. Recently a number of reports has been published of the presence of diphtheria bacilli in the wound of the umbilical stump and in other wounds, whereby the mistake was made of considering all cases as true diphtheritic wound infections, showing membranous-like exudate and the diphtheria bacillus. I remind you of the clinical similarity between the throat infections of scarlet fever and those of diphtheria. We know that the majority of these cases are not true diphtheria, but show only the streptococcus. We know then that other bacteria than the diphtheria bacillus, as, for instance, the streptococcus, are capable of producing diphtheria-like membranes.

We are able within a short time to group by means of the intracutaneous test a large number of exposed individuals into those who are susceptible and those who are immune to diphtheria. But we can go further. We can determine even without the threatened danger of a direct outbreak of diphtheria the susceptibility to this disease of an entire population. Zingher was able to demonstrate in a series of tests carried out on a very extensive scale, that the percentage of diphtheria immune individuals increases with the density of the population. The rural population and the population of the better sections of the city show a much higher proportion of positively reacting individuals. It seems, therefore, justifiable to assume that the increase in the number of negatively reacting individuals during advancing years is the consequence of repeated mild infection with diphtheria.

If we wish to fight against and eliminate diphtheria, we have to deal only with the positively reacting part of the population. It is especially necessary to turn our main attention to the age period between the beginning of the second and sixth year of life, because in this group two-thirds of the children are susceptible to diphtheria.

Besides hygienic measures, the best method of producing an immunity against a disease is active immunization. By inducing a small and insignificant attack we force the human organism to develop the same protective agencies as in more severe clinical attacks of the disease. For a long time it seemed as though all efforts would be in vain to bring about an active immunity against diphtheria. Prolonged studies were necessary by von Behring and Park over a period of many years for the development of a useful method. You all know that for active immunization an under-neutralized mixture of toxin-antitoxin is used and that it is possible by means of three injections to bring about protection against diphtheria.

With this form of active immunization it is absolutely necessary to determine whether the injections have been successful in producing immunity. With smallpox vaccination it is possible to determine that by revaccination. This revaccination, however, is not necessary, as the experience has shown that successful vaccination will certainly produce immunity against smallpox for a number of years. Unfortunately, we have no accurate method of determining the success with other forms of active immunization, as, for instance, against typhoid fever. In the case of diphtheria, however, we are able to determine by means of the intracutaneous reaction whether the individual, who had previously to the immunization shown a positive reaction indicating an absence of antitoxin, now gives a negative reaction. Our experience up to the present time shows that it is possible to produce an immunity against diphtheria in about 90 per cent. of injected individuals. A number of observations point to the fact that individuals produce antitoxin in different amounts and at different rates, a fact which is of significance in the pathogenesis of diphtheria. This phenomenon is also known in relation to animals. There are horses that rapidly produce a large amount of antitoxin after the injection of toxin, and others that produce it only poorly. We believe that there are individuals who are totally incapable of developing antibodies against diphtheria toxin.

If active immunization against diphtheria should assume practical importance, it was necessary to show that the induced immunity was not only transitory, but also of sufficiently long duration. With smallpox vaccination we see a protection lasting from 7-10 years. As far as we can see in the case of diphtheria we may assume that in all probability the immunity is of long duration and may possibly continue during the lifetime of the individual. If we remember that normally the antitoxin content in human beings increases with advancing years, then it is evident that we can bring about this condition by means of active immunization earlier. It is important to produce such protection in the most menaced age period during the first 8 to 10 years of life. We can, therefore, assume that in the case of diphtheria immunization a single series of injections would be sufficient to protect the individual during his whole life. This fact simplifies the practical immunization against diphtheria.

In discussing these points the question arises how the individual stricken with diphtheria recovers from the disease. We are justified in assuming that this occurs through his production of our antitoxin. From our observations we can conclude that in this instance also we have individual differences in the rate and rapidity with which antitoxin is produced. We can take it for granted, therefore, that the severity of the disease and the development of antitoxin stand in narrow relationship to each other. This relationship is from the point of view that the disease runs a milder course, the more rapidly the human organism is capable of producing antitoxin. We conceive the serious and malignant septic form of diphtheria as a disease, in which the toxin is produced in such large amounts and acts so rapidly, that the human organism is too late with the formation of its own antitoxin. This will be especially the case if the body produces the antitoxin only slowly or not at all. Fortunately most cases of diphtheria produce only a small amount of toxin, so that we are able to help the human organism in time with an injection of antitoxin. With diphtheria we are in a much better position than with tetanus, where unfortunately we frequently inject the serum when all possible damage has already taken place. According to our observations the antitoxin produced as a result of a mild attack of diphtheria remains in the body for a number of years. It is important to emphasize, however, that those who probably produce their antitoxin more poorly may lose it after a few years.

In our struggle against diphtheria we have to deal also with the question of the serumtherapy. Here also the intracutaneous method has enabled us to understand many interesting problems. It enabled us to work out the dosage of antitoxin and to learn the limits of its activity.

It is very difficult to determine by clinical observation alone how many antitoxin units were necessary for healing a diphtheria case, especially in severe cases. Some authors advocated 100,000 units and more and in repeated injection. But dosage based on clinical impressions is always more or less subjective.

In order to solve this problem we carried out systematic investigations on human beings by observing the effect of intramuscular injections of diphtheria serum on intracutaneously injected toxin in children with mild form of diphtheria. The injection of toxin in the small quantity prescribed for the test was repeated on three hour intervals up to the time of the serum injection and then 24 hours after that. The effect of the serum is to be learned in figures by the decrease of the diameter of the toxin reaction. It shows that under all circumstances the principal effect of the serum is not curative but immunizing. From the moment of the serum injection the effect of newly introduced toxin is neutralized, particularly in larger doses. The real curative power of serum is slight even in large doses and extends at most from 3-6 hours upon previously injected toxin, whereby the toxic effect ceases exceptionally, but mostly weakens only. In very rare cases we could note a light curative effect upon toxin injected 9 hours previously. In intravenous injection the curative power of the serum is somewhat more distinct.

A review of the curative results showed that the dose of the anti-diphtheric serum is to be computed according to the weight of the body.

For the therapy of diphtheria we came to the following conclusions:

The injection of serum must be made as early as possible. Every hour of delay may be harmful and is particularly dangerous in severe cases in which the quantity of toxin produced in the throat is considerable.

In all mild and medium cases 100 antitoxin units per kgm. of body weight are sufficient. In severe cases 500 A. U. per kgm. are to be injected.

Repeated injections should be omitted as completely superfluous.

Fifty A. U. per kgm. suffice for the purpose of immunization.

A slight improvement in the curative results may be achieved by intravenous injection; this may be followed in dangerous cases.

If we analyze what we know of diphtheria, we may well assert that such knowledge is quite satisfactory in comparison with our knowledge of other infectious diseases. It is true that we still have here a great many questions to answer, but we may hope that we shall be able to bring forth the answer to some of these in the future. First of all, we are able today to fight diphtheria successfully in asylums, hospitals and institutions. The elimination of diphtheria from the general population is a more difficult problem. I look with admiration upon the efforts of my American colleagues in this work. Among those who have taken the initiative in this country and have labored for years with great enthusiasm in carrying on this important work are Dr. Park and Dr. Zingher. Allow me to express before this society my sincere thanks to my American colleagues, especially to Drs. Park and Zingher, and also to Drs. Kelley, White, Mahoney, Ceconi and their associates for their so successful work. I was especially impressed with the care and precision with which the products are made at the Antitoxin and Vaccine Laboratory at Forest Hills. Permit me also to mention the fundamental contributions to the subject by Theobald Smith and the work of standardizing diphtheria antitoxin by Rosenau. Allow me finally to thank you for the opportunity you have given me to address you on the subject of diphtheria prevention.

TRAUMATIC THIRD DEGREE LACERATION OF THE PERINEUM IN A FEMALE CHILD SEVEN YEARS OLD. REPORT OF A CASE.

BY LOUIS E. PHANEUF, M.D., F.A.C.S., BOSTON.

THIS case is reported because of the infrequent occurrence of the lesion in a child that age, and to emphasize the importance of its early repair. The young patient, as her history shows, had been accidentally lacerated through the hymen, the vagina, the perineal body, and the sphincter ani muscle. The early and successful repair left her with normal genitals, and with perfect anal control; furthermore, because of the restoration of continuity of the lacerated tissues, the external genitals should develop as they normally would, a condition which could not obtain were the healing left to nature and a layer of scar tissue allowed to form between the levators and the torn ends of the sphincter.

The restoration of the sphincter is absolutely essential to the patient's comfort.

Traumatic lesions in this region should be treated as they are in other parts of the anatomy more exposed to injury, that is, all gross dirt should be removed, the parts should be thoroughly cleansed by irrigation, and disinfected with a non-irritating antiseptic solution, previous to their repair.

M. F., a female child seven years of age, and born in South Boston, was admitted to the writer's service at the Carney Hospital, on August 8, 1922. Her father, who accompanied her, explained that while she was watching a ball game, standing on an iron picket fence, she had fallen on one of the pickets; the iron picket had gone through her clothing and had lacerated her external genitals. The hemorrhage had been fairly brisk and upon her admission to the hospital a short time after the occurrence of the accident, her clothing was considerably stained with blood.

The family history was negative, while the past history revealed that she had had measles, mumps and diphtheria.

The physical examination was negative except for the local injury.

The local examination showed a laceration extending through the hymen, the vaginal mucosa, the levator ani muscles and the external sphincter; the rectal mucous membrane was intact. The rectum could be seen bulging between the torn perineal muscles with each deep inspiration.

OPERATION.

Ether anesthesia. The gross dirt was removed with sterile gauze, and the external genitals were thoroughly scrubbed with green soap and water; the lacerated wound was irrigated first with a gallon of sterile water and then with a solution of 1-5000 potassium-mercuric-iodide. The torn ends of the sphincter were approximated by two sutures of No. 0 chromic catgut while the levators were united by three interrupted sutures of the same material; the vaginal mucosa was repaired by a submucous stitch, and the skin by a subcuticular suture of the same catgut. The immediate result was satisfactory.

CONVALESCENCE.

The child had very little discomfort after operation, and remained bright and cheerful throughout her stay in the hospital. No attempt was made to keep her bowels closed, her diet was liquid until an evacuation was secured on the second day; it was then increased to soft solids. The examination on the day of her discharge, August 20, 1922, twelve days after operation, showed practically perfect reconstruction of the parts.

The patient reported for further investigation on November 4, 1922, at which time the following note was made: "The vagina, perineum and sphincter are well healed, the scar is practically invisible. The mother reports that the child has complete control over her bowels."

Medical Progress.

PROGRESS IN GASTROENTEROLOGY.

BY A. EVERETT AUSTIN, M.D., BOSTON.

The direction of research in the last year has been largely in determining the effect of gastroptosis on digestion, the utilization of the stomach chemistry in diagnosis which had fallen into disrepute, the employment of the duodenal contents in detecting pathological changes in the pancreas and gall-bladder, and the treatment of gastric and duodenal ulcer.

GASTROPTOSIS.

With reference to this condition, Cavazza[1] showed in 298 cases (221 women and 77 men) by means of the Roentgen-ray method that the stomach emptied more rapidly with the patient lying on the back than in the erect position; lying on the right side, much more rapidly than on the back or abdomen and vastly more than on the left side. In the Trendelenburg position the most rapid discharge of all positions occurred. Furthermore, the more the fluid taken with the contrast meal, the greater the delay in evacuation of the gastric content. Raising the stomach by a belt or placing the patient in the Trendelenburg position for a number of hours each day, together with efforts to increase the fat deposit by an appropriate diet, are the best means for overcoming this condition.

Losio[2] reports two cases of marked gastroptosis with evident sinking of the pyloric portion of the stomach in which attacks of colic occurred so similar to biliary that the patients were operated in the expectation of finding stones, but the gall-bladder was normal.

Harris, S., and Chapman, J. P.,[3] in an examination of 1000 cases found that there was no such thing as a normal position of the stomach; that the position depended largely on the type of individual: in the person of ordinary build the lower border will be found by the x-ray above the navel, but in the person of narrow chest and slender build, the stomach when standing will be found in the lower left quadrant and the party entirely free from gastric symptoms; in fact, in their estimation the tonicity of the stomach and not its position is the factor of moment. In their opinion the ptotic individual is more prone to functional nervous disturbances, not on account of the position of the stomach and colon but because the type of individual in whom this condition is more common is of a more delicate nervous organization.

FRACTIONAL EXAMINATION OF GASTRIC CONTENTS.

Using normal individuals and those suffering from gastric neuroses, Kopeloff[4] found wide variations in the acidity of 10 c.c. fractions, withdrawn in rapid succession by the Rehfuss tube three-quarters of an hour after an ingested test meal; this was more noticeable in individuals with high rather than low acidities. By inserting three tubes simultaneously into the stomach of the same person and aspirating at the same time at 15-minute intervals, marked variations were found in the acid values of the contents drawn from various levels of the stomach; the position of the tubes was verified by roentgenographic examination. His conclusions are that aliquot fractions obtained by the Rehfuss method of analysis cannot be assumed to represent accurately the total gastric contents.

Two hundred individuals were examined by Pemberton[5] with the Rehfuss tube, and curves were made of the free hydrochloric acid and total acidity of fractional contents drawn at 15-minute intervals, up to two and one-half hours. Six distinct types of curves were found: (1) was insignificant and was found in all individuals where no form of pathological condition was found; (2) showed a high peak which was rapidly lowered at the end of two hours with entrance of bile from the duodenum—this was found in all ulcers of the lesser curvature with no pyloric obstruction; (3) showed a high initial level but a rapid fall at the end of one hour; this was the type found in five out of seven duodenal ulcers; (4) is a high curve maintained during the entire course of the aspirations; this is significant of pyloric obstruction and was found in all cases; where hydrochloric acid fails in obstruction due to cancer, the total acidity curve remains the same due to fermentative acids; (5) a steadily climbing curve which at the end of two and one-half hours had not reached its peak; this is significant of pure pyloric spasm which may arise from a small pyloric ulcer, from a chronic appendicitis, or from some other irritating lesion; this form occurred in six cases proved by operation; (6) a curve having no altitude occurring in achylias from whatever source. The author regards types 2, 4 and 5 as of most value. His rather conservative conclusion is, "By comparison with other methods, the fractional test meal is at least admissible as an aid in diagnosis."

Endeavoring to overcome some of the uncertainty attached to gastric analysis, Vanderfy[6] proposes that with the ordinary test breakfast, removed at the end of 45 minutes, the acidities should be determined in the usual way and at a subsequent period the individual should receive the same breakfast, but at the end of 45 minutes instead of removal, the party should receive a similar breakfast, to be removed 45 minutes later. In 35 instances of functional gastric disturbance, it was found that where the first examination showed a prospective hyper- or hyposecretion, the second examination would show an exaggerated hyper- or hyposecretion in some instances, but a normal secretion in others. Hence only those who showed an abnormal secretion by the second test similar to the first could be regarded as being true hyper- or hyposecretors. All were x-rayed to show that no pathological lesion of the stomach existed.

DETERMINATION OF PATHOLOGY OF PANCREAS AND GALL-BLADDER BY DUODENAL TUBE.

Roth, W., and Sternberg, F.,[7] not accepting the findings of others that gastric achylia was accompanied by loss of pancreatic juice and that the secretion of the pancreas demanded hydrochloric acid for stimulation, tested out six patients with pernicious anemia, a disease accompanied by achlorhydria throughout its course. The duodenal tube was used, and the secretion was measured both as to its tryptic and amylolytic content by recognized methods. In no case did they find a loss or even a diminution of these factors in the secretion though the amounts did not run parallel in all individuals. Furthermore, they conclude that pancreatic achylia, even if it exists, which is doubtful, must be exceedingly rare.

Using a duodenal tube through which 30 c.c. of N/10 hydrochloric acid was poured, Deloch, E.,[8] aspirated 36-65 c.c. during a period of 45-65 minutes which was tested for alkalinity and ferments. He found with gastric and duodenal ulcers in 18 cases that pancreatic supersecretion was present seven times; even with deficient gastric secretion, there was an increased activity of the pancreas. On the contrary, in icterus catarrhalis, there was a functional reduction in the secretion, while in cholecystitis, pancreatic carcinoma, and diabetes mellitus there was an organic diminution of secretion. Comparing these results with those derived from the examination of the stool for similar ferments, the latter method was found worthless for detecting disease of the pancreas.

Employing the duodenal tube, Hecht, P., and Mantz, J.,[9] found in normal cases a few minutes after its introduction, a spontaneous flow of dark bile. If this did not occur, either 20 c.c. of a peptone solution or of a 0.2 per cent. solution of oleum menthae piperitae were injected through the tube, which caused a flow, even in one case in which a later autopsy showed that the papilla of Vater was blocked by a malignant tumor. Hence they conclude that a spontaneous flow of dark bile or one induced by injections of peptone or peppermint, shows the integrity of the gall-bladder.

Tenney, C. F., and Patterson, S. H.,[10] in an individual after cholecystostomy with a permanent biliary fistula were able to prove by means of the use of the duodenal tube that magnesium sulfate does not increase the flow of bile but simply causes dilatation of the ampulla of Vater and stimulates contractions of the gall-bladder. Normal bile may be procured by the use of the duodenal tube even when the individual has a badly diseased gall-bladder. Bile injected into the duodenum through the tube does distinctly increase the flow of bile.

INTERPRETATION OF GASTRIC ACID VALUES AND VOLUME.

By means of a formula, Fitz, R.,[11] has endeavored to establish a standard of values, employing the findings in 1039 patients in the Mayo Clinic after a meal of 400 c.c. of water and 36 grams of arrowroot biscuit, removed by the Rehfuss tube one hour after eaten.

This formula is as follows: The concentration of free hydrochloric acid expressed as cubic centimeters of N/10 hydrochloric acid in each 100 c.c. of gastric contents was multiplied by the total volume of gastric contents removed and divided by one hundred. This product was multiplied by the square root of the cubic centimeters of free acidity. By this means four classes could be easily distinguished: (1) 730 patients with a factor of less than 600 by this formula, regarded as normal, contained only 13 per cent. with demonstrable lesions, and these were seven cancers and 85 ulcers; (2) 171 patients with anacidity of whom 31 had cancer in or adjacent to the stomach; the others had pernicious anemia, elderly arteriosclerosis and so-called achylia of youth; (3) 89 patients with hypersecretion contained 50 per cent. who had associated lesions of the gall-bladder, appendix, duodenum, and stomach. The author warns against calling these hypersecretion cases, gastric neurosis without a careful search for some organic lesion, acting reflexly on the secretion; (4) included all those with the acidity factor greater than 600 and gastric content greater than 300 c.c.; this included 49, of whom 25 had pyloric stenosis demonstrated by operation or Roentgen ray.

Carmelich, Guido,[12] found that the roentgenograms do not always portray fully the conditions found at operation; after a gastroenterostomy the symptoms disappear, but a radiological reexamination shows the ulcer unhealed or even larger than before. The explanation of this contradiction is that these ulcers undergo an active and inactive stage. Only during the active stage does the patient suffer pain, and only in this stage will the radiogram show an ulcer; hence, a negative result of the x-ray examination after the attack is over should not satisfy the clinician, but another attempt should be made during a subsequent attack. The author claims, from his radiological studies, that during an attack there is shown besides the duodenal defect, a marked pyloric cramp, a dilatation of the stomach and enormous gastric secretion; during the period of quiescence the fluoroscope shows intensive peristaltic action, rapid emptying, and the duodenal defect is obliterated by the rush of gastric contents through the duodenal cap.

Hadlich, E.,[13] has investigated the presence of bilirubin in the blood serum during an attack of pain arising from a duodenal ulcer. Of 59 cases investigated, 41 showed a positive reaction for bilirubin and 18 a negative. None of these individuals showed the slightest subicteric tint in the skin or sclerae; when as the result of treatment the pain had disappeared the serum bilirubin also disappeared. Hence the usual assumption that bilirubin in the blood shows cholecystitis, and its absence, duodenal ulcer, when both are in question, is untenable.

Hoefert, B.,[14] finds that, in normal individuals, the duodenal juice is always sterile. Where gastric hypochlorhydria or achylia exists, this juice is always filled with the same bacteria as are found in the stomach. Intestinal diseases and those of the biliary passages also favor an increase in the bacterial growth. No effort was made to identify them.

It has been shown by Moewes, C.,[15] that, in 130 cases of hepatic disease, including cholelithiasis, icterus catarrhalis, liver and gall-bladder cancer, cirrhosis, syphilitic liver, and acute yellow atrophy, the acid values of the gastric contents were diminished in three-fourths of all examinations. This manifested itself in the instances of cholelithiasis as a hypochlorhydria in 15 out of 39 cases and as an achlorhydria in 24. It was a matter of indifference in the results whether jaundice or closure of the common duct existed or not; further, the removal of the gall-bladder did not change these findings; hence the author regards them as primary and also considers this fact of great importance in the diagnosis between cholelithiasis and duodenal ulcer where the acid values are almost always increased.

TREATMENT OF GASTRIC AND DUODENAL ULCER.

Sippey, B. W.,[16] claims that by complete neutralization of the gastric juice in such ulcers, the following effects are produced: (1) Pyloric obstruction is partially relieved, since due in part to congestion; (2) pain is completely controlled; (3) excessive gastric secretion is diminished; (4) hemorrhage ceases and occult blood disappears from the stool; (5) perforation is not known after the second day; (6) healing of the ulcer occurs, as proven by autopsies on patients who have died from intercurrent diseases.

Bevan, A. D.,[17] sums up his experience in the following way: Almost all ulcers in their early history should be treated medically. When they persist under good medical management, when they recur in spite of treatment, when serious and repeated hemorrhages occur, when pyloric obstruction does not yield to medical treatment or there is suspicion of malignancy, medical treatment should not be prolonged, but should give way to surgical therapy. At least 10 per cent. of all ulcers of the chronic type demand surgical treatment.

GASTRIC CRISES.

The cause of the pretabetic symptoms of neuro-syphilis continues to be as great a puzzle as ever, but among the most constant of them are the periodic attacks of abdominal pain and vomiting followed by immediate recovery from symptoms, and though no evidences of tabes are present in pupils, knee jerks or gait, prompt cessation of gastric symptoms after a thorough course of antisyphilitic treatment occurs.

Urechia, C. J., and Rusdea, N.,[18] report a case of periodic pain and vomiting, lasting four to six days, who had shown a positive Wassermann five years before, but during the attacks the spinal fluid even was negative. There were no signs of tabes, but on the strength of the previous positive reaction, vigorous anti-syphilitic treatment was instituted, which brought about complete cessation of the attacks of pain and vomiting.

Mills, A.,[19] reports three cases of recurrent abdominal pain for which one had undergone a laparotomy without the discovery of a lesion. There was no ataxia nor other evidence of cord lesion; these attacks were often accompanied by vomiting, but not all. The Wassermann reaction was positive in all, and anti-syphilitic treatment relieved them all of attacks of pain. He warns against laparotomies for "colic," "appendicular colic" and "biliary colic" without stones before a thorough search has been made for a possible pretabetic condition.

Regensberger, K.,[20] reports the history of an individual who without pain had at exactly four-week intervals an attack of vomiting which usually lasted several days, promptly followed by complete recovery until the next attack. During the intervals, an examination of the stomach showed perfectly normal conditions as to chemical and roentgenographic findings. During an attack, which was shortened by atropine, chemical examination showed large quantities of highly acid gastric juice and the x-ray showed a firmly contracted pylorus and a much dilated stomach; in spite of frequent vomiting, there was a six-hour residue. Wassermann was positive, but no evidence of tabes was present in the reflexes.

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INJURIES TO THE SPLEEN.*

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It is generally stated that the spleen is involved in about 20-23 per cent. of all traumatic lesions of the parenchymatous abdominal viscera; but it is probably injured much more frequently than the published observations indicate, since a considerable proportion of the cases do not come under clinical observation. This is especially true in severe injuries, for many of these patients succumb a short time after the injury as a result of the profuse hemorrhage which is the inevitable result of grave traumatism to this organ.

Traumatic lesions comprise subcutaneous injuries and open wounds. Under subcutaneous injuries will be considered spontaneous as well as traumatic ruptures.

Subcutaneous Injuries (contusion, rupture). Subcutaneous injuries are much more common than open wounds; Michelsson's statistics (1913) comprise 298 cases, as compared with 82 gunshot wounds and 52 stab- or incised wounds of the organ.

Though subcutaneous injuries of the spleen have occurred at all ages, they are most common in men during the active period of life. Since a normal spleen is relatively small, and is fixed in a protected position, wounds of such an organ are unusual except as the result of extreme violence. On the other hand, diseased spleens are often large and friable, and reach below the costal arch, thus lying in an exposed position. Consequently this type is far more frequently injured; moreover, rupture of such organs may occur as the result of comparatively slight violence. Malaria is the most frequent cause of such an enlargement. The malarial spleen is not only more exposed to traumatism on account of its position, but, in addition, its diminished elasticity and secondary capsular changes favor serious destructive lesions of the organ. Berger collected 132 cases of rupture of a diseased spleen, of which 93 were malarial. Rupture of the organ has been noted in the new-born by Steffen and by Charcot. The enlarged spleens in these cases were probably due to syphilis. Rupture has also been reported following trauma in Banti's disease (Blecher) and other types of splenomegaly.

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Spontaneous ruptures occasionally occur in diseased spleens, such as the large, friable spleens of typhoid. Spontaneous rupture will be considered at some length in a subsequent paragraph.

A subcutaneous injury of the spleen may be caused by direct or indirect violence. Injury to the organ by direct violence may be brought about in various ways, such as a kick by man or animal (Walker) or a fall from a height (Ballance, Latouche), the force being exerted immediately over the organ; or the lesion may occur as a result of compression, as when the body is run over by a wheel. In these cases the spleen is usually crushed or burst. But the lesion may also be caused by a fractured rib driven into and tearing the organ. In indirect violence the force is exerted at a distance, as a fall upon the buttocks. Muscular violence has apparently been the cause in rare cases, the injury following vomiting (Kernig), sneezing (Roeser), or childbirth (Simpson). But in such cases the spleen must have been unduly friable.

Pathological Changes in Subcutaneous Injuries. Any part of the spleen may be affected. The lower extremity of the organ, being the least protected, is especially exposed to traumatism acting from below the ribs; whereas a force which produces one or more fractures of the lower ribs will cause an injury higher in the spleen. Associated lesions of the abdominal organs are rare. The left kidney has been ruptured coincidently in some cases (Gardiner, Hughes), the frequency of this lesion being placed as high as 12 per cent. The colon, liver, pancreas and lung have rarely been injured.

Subcutaneous injuries may be divided into injuries without rupture of the capsule (contusions) and those with rupture of the capsule (ruptures).

Contusions consist of intracapsular lacerations of the parenchyma. The intrasplenic hemorrhage is variable in degree, but may be considerable. The splenic lesion may rapidly heal, and the blood, especially if small in amount, may be absorbed and leave little or no evidence of the injury. On the other hand, abscess not infrequently develops as the result of hematogenous infection. Large uninfected accumulations of blood may leave cicatricial areas of considerable size, veritable fibrous tumors, or they may become encapsulated and form cysts (Terrier, Heurtaux, Camus).

Where the injury involves the capsule, constituting a rupture of the organ, the lesions vary from slight rents of the parenchyma and capsule to extensive destruction of the splenic tissue. The fissures may be clean cut or lacerated; single or multiple. Fragments of variable size may be completely separated. The whole spleen may be separated at its hilus. Occasionally, the vessels only have been torn, and in a case reported by Pohl the vein was divided, and the artery intact. The patient was a child 3½ years old, who was run over by the wheels of a wagon.

Hemorrhage regularly occurs, and may be extreme. Blood often accumulates as a coagulum near the spleen (Camus, Plucker), as a result of clotting and adhesions, but free bleeding into the great cavity is frequent.

Hemorrhage is occasionally delayed for a considerable period after the injury. Several explanations have been offered. Neck (*Münch. Med. Woch.*, 1905, p. 512) attributes the delayed hemorrhage to the insertion of bloody coagula in the splenic ruptures, the hemorrhage being thus suppressed by "tamponade." Demoulin (*Revue de Chir.*, 1901, p. 247) believes it is in some cases due to a large subcapsular hemorrhage which ultimately bursts the detached capsule. Nast-Kolb, as the explanation in his case, assumes that the omentum "packed" the splenic wound immediately after the injury. This sufficed for the suppression of the hemorrhage, until the agglutinations ruptured and blood was poured into the abdominal cavity.

The splenic ruptures, if small, may undergo repair. The surface becomes covered by a clot, which organizes in a short time. The omentum not infrequently becomes adherent to the clot and reinforces the scar (Gourrin). The repair of these wounds has been studied by Mayer in animals.

A localized perisplenic hematoma may be absorbed, become encysted or become infected, causing an abscess (Bonnamour and Bouchut).

The *symptoms* of contusion and rupture of the spleen are extremely variable, depending upon the extent of the lesion, the character of the traumatism and, especially, the previous condition of the organ (hypertrophy; adhesions). The mildest and severest types are apt to escape detection, the former passing as simple regional contusions or costal fractures, while extensive ruptures are usually associated with profuse hemorrhage, and are often promptly followed by death. The symptoms in the intermediate group are divided into those due to traumatic shock, internal hemorrhage, and abdominal manifestations.

In contusions there may be pain, tenderness, local muscular rigidity, and increase in the size of the spleen. The spleen may gradually increase to a marked degree as the result of an accumulation of blood within the unruptured capsule. Heurtaux reported a striking example of this. In some cases there is intermittent fever. Rupture of the capsule may occur at any time with internal hemorrhage and its symptoms, or suppuration may develop with the symptoms of abscess. The pain in all injuries of the spleen is often referred to the left shoulder, and may be ascribed only to this region. Yet Connors, in a considerable experience, never noted this feature.

Rupture of the spleen gives rise to the symptoms of hemorrhage and shock. The degree varies widely, and is dependent upon various factors. Shock may be extreme and result fatally within a short time, but hemorrhage is usually the important feature. Berger states that 51.8 per cent. of cases of rupture of the spleen die within one hour as the result of hemorrhage.

In the early period after the injury it often cannot be determined whether the symptoms are due to shock or internal hemorrhage. The initial picture of shock may be prolonged indefinitely as the result of hemorrhage. In an extensive lesion the one follows and fuses with the other, and there is often no means of differentiating the symptoms of the two. Not infrequently, however, there is a latent period between the subsidence of the shock and the development of clinical manifestations of internal hemorrhage. Thus, in one of d'Auvray's cases the symptoms of hemorrhage did not develop for 18 hours. It is unnecessary here to enter into the general clinical manifestations of shock and hemorrhage.

Some indication of accumulation of blood within the peritoneal cavity may often be obtained by percussion. The flanks, especially the left, present undue dullness if blood accumulates to a marked degree. Some writers, especially Pitt, Ballance, and Chavannaz, attach much importance to a peculiarity which they believe is frequent. That is, percussion over the right flank, with patient turned on left side, gives tympanitic note; whereas the reverse, percussion over left flank, with patient turned on right side, continues to give dullness by reason of clots. This has been termed the sign of Ballance.

The blood changes are often suggestive, in that hemorrhage gives an early and rapid rise of leucocytes, not accompanied by a relative fall in hemoglobin and red cells. Thus, in a boy of 19 treated at the New York Hospital, who was run over, spleen ruptured and successfully removed, about half hour after accident the blood showed:

W.B.C. 34,400 Polys. 77% Hgb. 93%

Two hours later

W.B.C. 45,700 Polys. 88% Hgb. 93%

Reference must be made to those cases in which symptoms of internal hemorrhage develop a considerable period after the injury, the individual having been free from all symptoms during the interval. The condition is well illustrated by the case of Nast-Kolb. The patient was a robust man who after a kick by a horse in the splenic region felt quite well for four days, except for slight pressure-pain in the left side of the chest. The author especially emphasized the fact that the temperature did not rise during the entire course, although several observers have called attention to elevation of temperature in splenic injuries as an important diagnostic aid. Left-sided shoulder pain, a sign which is somewhat characteristic of splenic injury, as emphasized by Levy and others (*Centralblatt f. Chir.*, 1910, No. 50, p. 1577), was likewise absent. Without prodromata, while in good health, the catastrophe overtook the patient, when danger seemed to have passed.

While straining on a bed pan, he suddenly collapsed, and presented the condition of profound shock. This became steadily worse, with progressive anemia. Dullness was demonstrable in the splenic region. The diagnosis of splenic hemorrhage was made, and immediate operation undertaken. The abdomen contained a quantity of fluid blood. A large rupture could be felt on the convexity of the spleen. The spleen was entirely encased in loose omentum, which was detached without difficulty. The splenic pedicle was ligated and the spleen removed.

Hahn reported an impressive case in which, seven days after an injury, fatal hemorrhage occurred from a subcutaneous rupture of the spleen, which up to that time had caused no symptoms. Extirpation of the spleen failed to save the patient's life. The cavity contained a large amount of fluid blood. There was a tear on the posterior wall of the spleen, and a blood clot larger than a fist lay behind the organ.

The patient, a coachman, had been flung to the sidewalk, striking his right side. It is probable that the splenic wound became closed by the primary bloodclot. On the fifth day after the accident the patient took a short journey by rail, which probably induced the profuse secondary hemorrhage.

In a review of the cases of delayed hemorrhage of the spleen, reported in the literature, Nast-Kolb states that the time which had elapsed between the injury and the operation varied between one and a half to nine days. The lesions were always very extensive lacerations of the organ. Of the nine cases which were operated upon, three died. The author emphasizes the fact that no new guides for diagnosis could be obtained from the reported cases; and that a suspicion of a splenic injury should arise in all severe traumatisms to the left side of the chest or abdomen, and such patients should be closely watched for a considerable time. On the first evidence of internal hemorrhage, operation should be undertaken.

Prognosis. Death may occur rapidly or after an interval of a few hours from shock and hemorrhage. Or the blood may clot for a time, and hemorrhage be temporarily arrested or retarded, and death from hemorrhage be delayed for several days.

The prognosis is unqualifiedly bad in rupture of the spleen in cases that are treated conservatively. The mortality is given by Berger as 84 per cent., and by Choux as about 96 per cent. Berger estimates that 51.8 per cent. die in the first hour. He states that 90 per cent. of deaths are due to hemorrhage and 10 per cent. to infection. In contrast to the appalling outlook without operation, surgical treatment has given much more favorable results.

Chavannaz compared the statistical tables from 1897-1909, and found steady improvement on account of earlier diagnosis and better surgery.

Johnson (1908) collected 150 splenectomies for trauma of spleen, with a mortality of 34 per cent.

Nephrectomy and splenectomy have been performed successfully for injuries to both organs (Caplesco).

Treatment. Splenectomy is the operation of choice, and should, in general, be employed; yet adhesions occasionally are such as to render splenectomy impossible, in view of the condition of the patient. In such cases one may attempt, in small tears, suture of wound or tamponade; in a large wound clamps or ligatures may be placed on the pedicle to control bleeding, and the operation completed subsequently after reaction of the patient. Suture (splenorrhaphy) is not a reliable procedure because the stitches often tear through the friable spleen and render the condition worse. However, it has proved successful in some cases. Berger cites two cases of splenorrhaphy for rupture of spleen, with one recovery. Tamponade is likewise unreliable; yet Berger collected six cases of tamponade for rupture, with one death, and believes it is applicable for small tears, with marked adhesions and bad condition of patient.

It has been shown by the investigations of Carrière and Vanverts that ligation of the pedicle causes necrosis of the organ, and therefore is not advisable except as a temporary measure. Ligation of the artery proximal to the left gastric epiploic artery is said to cause atrophy of the parenchyma. It is possible, therefore, that this might be justifiable in conjunction with tamponade if very firm adhesions are encountered. Ligation of artery close to the hilum is said to cause necrosis (Stubenrauch).

Since diagnosis is often doubtful, the operation must be planned for a complete exploration; it must be rapid; associated injuries must be thought of and sought. The technical details of splenectomy need not be described.

The following illustrative case is of interest: A boy of ten years was admitted to the New York Hospital on May 22, 1920, complaining of pain in the abdomen. About 10 minutes before admission, he was thrown down by a touring car and one wheel passed over upper abdomen in region of costal arch. When first seen, patient appeared to be in moderate shock. Face and lips were pale; breathing was rapid and accompanied by an expiratory grunt; pulse 96 and of fair quality. Temp. 98, resp. 32; the hands were cold and clammy. The boy did not complain of thirst or air hunger, but he was restless, and complained of severe pain in abdomen; the face was pale and covered with sweat; expression anxious; breathing was costal in type. There was no evidence of fractured ribs.

Abdomen was rigid all over, especially in upper half. There was marked tenderness in epigastrium and right upper quadrant; also slight generalized abdominal tenderness. Abdomen was not distended nor yet scaphoid. Dullness in both flanks, no fluid wave. No obliteration of liver dullness. No shifting dullness. Immediate blood count. (The blood counts in this case have been given in an earlier paragraph.)

Patient showed clinical evidence of internal hemorrhage. Pulse became more rapid and weaker. He later complained of thirst, and showed evidence of air hunger. Abdominal signs showed little change, aside from increase in area of dullness in flanks.

Laparotomy revealed a badly lacerated spleen bleeding actively, with about 700 c.c. of blood in peritoneal cavity. No other lesion; splenectomy was done (Dr. S. Erdman).

Infusion was given on operating table. Patient made uninterrupted recovery.

As a substitute for transfusion, in cases of traumatic rupture, Hauke collects the blood from the abdominal cavity, mixes it with 0.5 per cent. of sodium citrate solution, and injects it intravenously. This procedure should not be elected in preference to transfusion when a suitable donor is available and facilities for transfusion are at hand; it is, however, of value when a transfusion cannot be given.

Spontaneous rupture may occur in diseased spleens without apparent trauma. Cimbali (cited by Litten) mentions the case of a man, 65 years of age, whose spleen was much enlarged as the result of malaria. Though apparently in normal health, on rising from bed rupture of spleen occurred. This was demonstrated by operation, which was not successful. Noland and Watson, Leighton, and others also have reported rupture of malarial spleens. Leighton presents abstracts of the reported cases. Spontaneous rupture also has been noted in typhoid, puerperal infection, labor (Hubbard), pregnancy (Schwing, Simpson), relapsing fever, typhus, and tuberculosis (McCoy). As a complication in typhoid, this sequel to the disease demands some elaboration. Conner and Downes described a case, and reviewed the reported cases of spontaneous rupture of the spleen in typhoid fever. They state that only twelve other cases are recorded in the literature. These were collected by Melchior, who added one additional case which they exclude (No. 9). In nine cases the condition was discovered at autopsy. In three it was found in the course of operation for supposed intestinal perforation. None of these cases recovered. The infrequency of the complication is shown by the statistics of Curschmann. In 577 autopsies on typhoid patients, only two cases of rupture of the spleen were found. All of the twelve cases recorded by Melchior were males, 10 adults and two boys of 8 and 10. The time of rupture in the 13 cases (12 collected by Melchior, and that of Conner and Downes) occurred as follows:

5 cases second week.
2 cases third week.
1 case fifth week.
1 during convalescence.
3 no record.
1 during an apparent relapse.

The rupture apparently may involve any part of the surface, and is usually linear. The depth apparently does not determine the degree of hemorrhage. The symptoms in the recorded cases lasted from a few hours to three days. The symptoms of rupture of the spleen, Conner and Downes state, fall into two distinct groups: "(1) the local symptoms of the rupture and of irritation of the neighboring peritoneum by the extravasated blood, and (2) the general symptoms of severe internal hemorrhage. In most of the cases described, pain seems to have been the first symptom, although the location and character of the pain have usually not been given in much detail." A picture of the condition can best be given by a summary of their case. The patient, a male aged thirty-six years, was admitted to the New York Hospital on February 20, 1913, with the diagnosis of typhoid fever. His symptoms had begun seven days previously.

On February 21st he complained of a sudden, sharp, stabbing pain in the left hypochondrium. This was followed by severe aching pain in the left shoulder, which radiated down the left arm. Soon after the onset of the pain he vomited a small quantity of clear fluid and broke into a profuse perspiration. The respirations were rapid and shallow; there was marked tenderness to pressure just below the costal margin, where the spleen could be distinctly felt, and slight rigidity of the upper part of the left rectus muscle. February 22nd the patient looked seriously ill. His eyes were sunken, his features drawn and anxious, his respirations shallow and hurried. February 24th, patient's condition was improving.

On the morning of February 25th he had a similar attack, with the sunken eyes, the pinched features, and anxious look that had characterized his first attack. His pulse was rapid, small and soft; his respirations also were rapid; the skin was covered with cold sweat, and he complained of weakness and nausea. There was dullness on percussion over the greater part of the left side of the abdomen, and in the left flank, and some rigidity and tenderness in the left upper quadrant. "The symptoms pointed strongly to an alarming loss of blood, but the blood examination seemed inconsistent. Red cells, 5,280,000; hemoglobin (Sahli), 85 per cent.; leukocytes, 35,000."

On operation by Downes the abdomen was found to contain a large amount of blood, estimated at from one and a half to two quarts. When the hand was passed behind the spleen, a rent in the capsule, fully three inches in length, was encountered running along the posterior border. The spleen was removed, and the patient made a comparatively uneventful recovery.

The authors state that the discovery at operation of a layer of old laminated clot lying directly over the dorsum of the spleen made it certain that the acute symptoms which appeared three days before the operation indicated the time of the first rupture of the splenic capsule. These symptoms had entirely subsided before the second attack of coughing. At that time evidently there was either an increase in the rupture of the capsule or a displacement of the old clot, and subsequent uncontrollable bleeding from the site of the tear.

A second point of interest, they state, relates to the character of the blood examination at a time when all the symptoms indicated an alarming internal hemorrhage. The case illustrates that increase in the leukocytes occurs much earlier than do the other characteristic blood changes, namely, the fall in the number of red cells and in the percentage of hemoglobin.

The treatment of the condition is obviously surgical; and the severity of the hemorrhage is often so great that early operation is essential. The possibility of the complication, therefore, should be borne in mind, and suggestive symptoms should decide one in favor of immediate operation. Preparations should be made for giving a transfusion as soon as hemorrhage is checked or, if the condition is extreme, transfusion and operation may be begun simultaneously. Under local anesthesia, an exploratory incision was made by Downes in his case, and general anesthesia was administered when the diagnosis was verified. This is probably the best routine to follow. In the absence of facilities for transfusion, a saline infusion should be substituted.

Open Wounds of the Spleen. By reason of the small size and protected position of the spleen, open wounds of this organ are relatively rare both in civil practice and in modern warfare.

In civil practice such wounds are most commonly produced by bullets, the greater frequency of gunshot wounds as compared with stab- and incised wounds being accounted for by the anatomical position of the organ.

In stab wounds, which are usually inflicted from above, the wound is often in the lower left thorax, consequently the pleura, lung and diaphragm are frequently involved. But the wound may involve the left hypogastric or lumbar regions. In gunshot wounds the bullet enters the abdomen more often than the thorax, therefore injuries of the gastro-intestinal tract or kidney predominate as associated lesions. The wound of entrance may be at a considerable distance, as the epigastrium, right hypochondrium, right thorax or even more remote sites. The degree of injury to the spleen varies. A narrow blade, such as a stiletto, may cause only a small wound. A bullet at the height of its course, unless deflected by bony structures, penetrates like a stiletto with no explosive effect. Under such conditions the splenic wound may be small, and the wounds of entrance and exit in the abdominal or thoracic walls are punctate. On the other hand, a bullet at the beginning of its course or when almost spent will produce irregular and lacerated wounds in the spleen and the overlying soft parts.

War Wounds of the Spleen. The experiences gained in the recent war are worthy of analysis. While relatively infrequent, in the aggregate they comprise a considerable number of cases. Certain deductions may be drawn which apply somewhat to wounds in civil life.

Frequency of occurrence: The 1920 report shows that for our troops in France there were 49 battle wounds involving the spleen, of which 31 resulted in death. The tabulations of operations are not complete, but the records show that of 10 splenectomies 8 died. (General Ireland, personal communication.)

From the British forces, Wallace reported that in 965 abdominal operations the spleen was found wounded 54 times. In 32 instances it was the only organ damaged.

In modern warfare open wounds of the spleen result especially from fragments of high explosive shells, but also from rifle or machine gun bullets, rarely from sharp weapons. The wound of entrance most often is in the lower left thorax, left hypochondrium or lumbar region, but it may be at a considerable distance, entering the epigastrium, right hypochondrium, right thorax or even more remote situations. In addition to the direct wounds of the spleen, rupture of the organ may occur indirectly, especially by large fragments of projectiles which have not actually come into contact with the organ. Such injuries are more likely to occur in a pathologically enlarged spleen which is abnormally friable.

Wallace reported two cases of ruptured spleen produced by shell fragments which did not themselves touch the organ. The left lower chest was hit and the ribs broken. In one the diaphragm was intact. In the other the diaphragm was ruptured over a small area, and there was a corresponding wound on the outer surface of the spleen with radiating fissures, showing that the spleen had been burst by an indirect blow.

Bullet wounds with punctate entrance and exit do not differ materially from similar wounds in civil life; but lacerated wounds, whether caused by bullets or sharp weapons, must be considered as having more or less the characteristics of wounds caused by shell fragments. The essential difference from wounds of civil life is the far greater probability of the introduction of pyogenic and gas bacillus infection. In the case of high explosive shells, the irregular fragments carry into the tissues bits of clothing laden with organisms and deposit these along the tract, the walls of which are devitalized by the rough fragments. Such devitalized tissue acts as an admirable medium for the growth of pathogenic micro-organisms.

Pathological Anatomy. All degrees of injury to the organ may occur: penetrating, gutter, perforating, lacerated wounds, or ruptures with separation of a segment. The friability of the tissue is so marked that extreme destruction and large tears are the rule, yet limited, clean-cut wounds occasionally occur. In the majority of cases of wounds by shell fragments, deep, irregular fissures radiate from the orifices of entrance and exit, at times completely separating segments of the organ. Moreover, in most cases, as a result of contusion a large part of the parenchyma is converted into an almost fluid pulp (Fiolle).

The splenic pulp when wounded is prone to give rise to hemorrhage of extreme degree, so much so that a large proportion of cases in warfare do not survive transportation from the field of battle to a hospital where surgical measures may be undertaken for the arrest of the hemorrhage. This is notably the case in wounds involving the pedicle of the organ. The splenic pulp is, moreover, peculiarly prone to infection, consequently the late development of an abscess within the organ or subphrenic abscess is not uncommon.

Associated lesions: Of the thoracic organs, the *pleura* is most frequently coincidently wounded; the lung not infrequently; the pericardium rarely (Stern). Stern's patient presented a large wound at the left base of the thorax, through which protruded the ragged lower pole of the herniated spleen. The organ was reduced to a bloody mass, the diaphragm was torn and there was a rupture of the pericardium. Splenectomy was performed, but the patient died.

With wounds of the pleura and diaphragm, hemothorax may result. If the diaphragmatic opening is large, the blood may flow into the pleura rather than into the abdomen. In one case hemo-pericardium developed (Hallopeau).

Of complicating injuries of abdominal viscera in war-wounds of the spleen, according to Fiolle.

wounds of the small intestine have most frequently been reported; after which, in order of frequency, lesions of the colon, the left kidney, and the stomach are seen as associated injuries, the pancreas and the liver being much more rarely wounded. Wallace, on the other hand, found the kidney the most frequently involved. Subsequent peritonitis is common, even when the spleen alone is injured.

The thoracic and abdominal walls are sometimes so widely opened as to permit hernia of the spleen. This is far more likely to occur with a posterior than with an anterior wound.

Delore and Kocher state that the prognosis of thoraco-abdominal wounds, with isolated injuries of the spleen, is essentially governed by the presence of pleural rather than peritoneal complications.

Fiolle states that, like all war-wounds, those of the spleen are very easily infected, but as the organ is relatively isolated from the great serous cavity by its situation and by the barrier of the stomach and the colon, the infection often becomes localized and subphrenic abscesses are common. Their course is peculiarly rapid and malignant, the patient usually succumbing within a few days under severe general symptoms. When the diaphragm has been perforated, these abscesses may break into the thorax, giving rise to purulent pleurisy.

Symptoms and Diagnosis. As has been emphasized, the high subdiaphragmatic position of the spleen exposes it rather more to wounds involving the thorax than those exclusively confined to the abdomen, and for this reason splenic complications are frequently overlooked.

There is no way of determining the fact that the spleen has been wounded. This is largely due to the usual occurrence of associated lesions which mask the picture; for instance, an open wound of the thorax, a perforating wound of the intestine or a wound of the kidney. Even when the spleen is the only organ wounded, there are no symptoms which call attention to it. Internal hemorrhage may arise from various sources. Moreover, internal hemorrhage of considerable degree, from the spleen or elsewhere, may occur without recognizable symptoms for a considerable time, in view of the associated marked degree of shock which usually attends such wounds. Of course, if severe hemorrhage is noted from the external wound, there can be no question of a serious lesion; but even then its source is doubtful.

The diagnosis of stab- and gunshot wounds of the spleen offers especial difficulties, in view of the absence of a definite symptomatology, and the frequency of associated wounds of other organs. The direction of the wound, the evidence of internal hemorrhage, pain and muscular rigidity in the left hypochondrium may lead to a presumptive diagnosis that the spleen has been wounded; but conclusive evidence is rare.

Radioscopic examination sometimes aids in the diagnosis. The shadow of the spleen may be visible on the screen, and a shell fragment or bullet may be localized in the organ. A foreign body was localized on the hilus of the spleen in one of Fiolle's cases.

The mortality has been given as 60 per cent. (Mayer) and 53.8 per cent. (Edlers). Lebreton reported 17 cures in 28 cases of gunshot wounds. Wallace found the mortality 50 per cent. in uncomplicated and 63.6 per cent. in complicated cases.

The prognosis depends upon many factors, including the size and situation of the wound, previous state of the organ (fibrosis tends to limit the hemorrhage) and associated lesions.

The prognosis is serious even in relatively slight wounds in which hemorrhage is temporarily stopped, because it is likely to recur, and then may be excessive and even fatal. Permanent arrest of the hemorrhage by operation is therefore strongly indicated.

Treatment. The treatment of open as well as subcutaneous injuries of the spleen is exclusively surgical. If there is merely a suspicion of internal hemorrhage, operation is indicated. Prior to operation, quiet should be enforced, and morphine administered. Transportation should be as gentle and expeditious as possible, and all methods should be observed for combating shock. But transfusion in general should be delayed until the patient is on the table and hemorrhage is either arrested, or is to be arrested immediately by operative procedures.

Since the course of the projectile cannot be determined accurately before operation, the incision or incisions must usually be so planned as to allow adequate exploration and, in lacerated wounds, excision (débridement) of contaminated tissues of the abdominal or thoracic walls. This is often done through a separate incision.

The incision must depend upon site of wound and regions to be explored. The operator must be prepared to explore a wide area of the peritoneal cavity. In such a case a median incision may be elected. This can be modified, if necessary, for splenectomy after the cause of the bleeding has been identified as splenic. For stab wounds or bullet wounds evidently confined to the splenic region, the incision may be planned for immediate exposure of the spleen. In some cases the course of the tract must be followed for exploration, in which case the tissues along the tract should be excised.

If the wound is in the hypochondrium, a transverse incision or oblique incision along the costal arch may be employed, with excision of the wound of entrance. In thoracic wounds it is best to follow the tract through the thorax, and to establish the fact that the abdomen has been penetrated. The diaphragm and thoracic wound are then repaired, and an independent abdominal incision made for exploration and exposure of the spleen. In some cases, however, if there is evidence that the projectile has not penetrated far beneath the diaphragm, the wound in it may be enlarged, and exploration of the spleen made through it. It has been recommended that when thoracotomy has revealed penetration of the diaphragm and the spleen, wider exposure be obtained by an incision downward from the wound, sectioning the ribs and extending downward along outer border of rectus, the diaphragm also being sectioned from wound to its insertion, thus making with retraction a wide exposure. An independent abdominal incision, however, appears preferable.

After the spleen has been explored and found to be wounded, splenectomy is in general the proper procedure, since it may be quickly performed, meets the indications of permanently controlling hemorrhage, and is apparently harmless from the standpoint of subsequent health. When the spleen is so firmly adherent as to render its removal dangerous, other methods of an emergency nature may be employed. Small linear tears have been closed by suture with fine round curved needle. The suture of a piece of free omentum in the wound is a valuable measure to aid in the control of hemorrhage. However, the friability of the organ renders control of hemorrhage by suture uncertain. Packing is regarded by Wallace and Fiolle as preferable. The gauze should be left *in situ* about ten days (Fiolle). As a last resort clamps may be left on the pedicle and splenectomy performed after reaction from shock.

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DISCUSSION OF DR. POOL'S PAPER.

Dr. Charles A. Porter, Boston: Dr. Pool has covered the injuries to the spleen so concisely and clearly that I think I am paying him a compliment by saying I can add nothing to it, and in view of the shortness of the time for the program, I doubt if anyone of us can add anything to this important and most interesting paper.

Dr. John W. Keefe, Providence: I wish to mention a case of spontaneous rupture of the spleen following malaria. Twelve years ago a man who had been ailing with malaria was lying on a sofa in the kitchen, and as he arose to go to bed in an adjoining room, he fell to the floor and was in a condition of shock. He sent for a physician, who gave him some morphia and also saw him in the morning and gave him some more morphia, thinking he had appendicitis. He was sent to the hospital, and arrived at the Rhode Island Hospital after journeying twenty-one miles. I operated on him fifteen hours after the accident. From his symptoms I had the impression that he had a perforation of an important organ, or acute pancreatitis. I made a right rectus incision, and found the abdominal cavity filled with blood. I felt of the liver and then the spleen, which I found ruptured. I clamped the wound on the right side, and made another incision in the left rectus. I then removed the spleen and sewed up the wound. I saw him within the year, and he has been able to attend to his work for twelve years without a spleen. He is now an overseer in a bleachery.

Rupture of the spleen following malaria is, of course, unusual, but there are a number of cases reported. I am sure he had malaria, because two days after the operation he had a chill and, later, another chill, and we got some of his blood and found the plasmodium.

Dr. E. P. Richardson, Boston: A boy of twelve fell off a bicycle. He was rather severely jarred, but was able to walk home. The next and the succeeding days he went to school. On the sixth day he had sudden, severe pain in the left abdomen, increased by respiration, with clear-cut radiation to the left shoulder. Operation showed a ruptured spleen, with extensive hemorrhage. I am indebted to Dr. Pool for pointing out why we have delayed hemorrhage from the spleen in a case which shows no immediate symptoms of rupture.

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HARE LIP.*

BY W. E. LADD, M. D., F. A. C. S., BOSTON.

For the sake of brevity, this paper will include only the treatment of hare lip. Cleft palate will be mentioned only as its intimate association makes reference to it necessary. Although for a great many years attempts have been made to correct this distressing malformation, it is only comparatively recently that the cosmetic as well as functional results have become of high grade. While today there are many surgeons gaining gratifying results, we find them doing so by very variable methods, principles and details of technique. In the hope that discussion and criticism may lead to more uniformity of procedure, as well as results, the writer is presenting some of the main principles as well as his own beliefs and technique.

Roughly speaking, there are four main principles for the correction of hare lip:

First: That of forcing the maxillary and intermaxillary bones together until the palate bones meet, and holding them there by means of silver wires running from side to side through perforated metal plates placed outside the alveolar processes. This operation should be performed in the first few days of life, and the defect in the soft parts of the lip repaired a few weeks later, the wires and plates being left for approximately thirty days.

Second: That of closing the palatal cleft by a flap of mucous membrane, as a preliminary operation in the first few days, and following this by closure of the soft parts of the lip a short time later. This relies on the closure of the lip to correct the bony deformity.

Third: That of pushing back the premaxilla, but not holding it there by any sutures in the bone, and closing the defect in the lip over it. Here the action of the muscles of the face is relied upon to form a proper alveolar alignment.

Fourth: That of pushing the premaxilla into proper alignment, holding it there with silver wire suture and closing the soft parts of the lip at one operation, performed in the first few weeks of life.

Such is, of course, but a rough summary of the principles, but sufficient to show the wide variation of methods employed by men of large experience in this line of work.

The writer's objections to the first system are: that, in many cases, to join the hard palate by forcing the maxillary bones together causes too narrow an arch; that leaving any foreign body embedded in bone for as long as recommended must cause reaction, which often interferes with proper development; that it does not make it possible for the baby to nurse until the lip is united.

The objection to the second system—that of closing the palate first with a flap of membrane—is that it gives functionally a very imperfect palate and does not give a foundation for a good cosmetic lip closure.

The third system—that of relying on the muscular action of the face to form a good alveolar line—has three drawbacks: First, it places tension on the suture line, which is contrary to all good principles of plastic surgery. Second, it gives no foundation over which to form the soft parts. This necessitates secondary operations, which become difficult on account of scar tissue. Third, in more than 50 per cent. of the cases in which I have seen this principle applied, the lips have pulled apart.

The fourth principle—that of forming a good alveolar line and closing the soft parts of the lip over a good foundation—is sound. It comes nearer to supplying normal relations than any of the other three systems. As a practical matter, a study of 535 cases at the Children's Hospital shows that this system, in our hands at least, yields better results than other systems tried.

There is still a variation of opinion as to the best age at which to operate. Infants in the first few days of life stand operation surprisingly well, without doubt. But in our experience, at least, it has seldom been practical to do the operation at this time. We, therefore, recommend having the baby fed on breast milk pumped from the mother and, as soon as he has regained his birth weight, performing the operation. This means that the ideal time for operation is within the first three weeks. The baby can then nurse from ten to twelve days after operation, which solves the very important problem of feeding. Failure to notify the surgeon

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*Read before the New England Surgical Society, September 22, 1922.

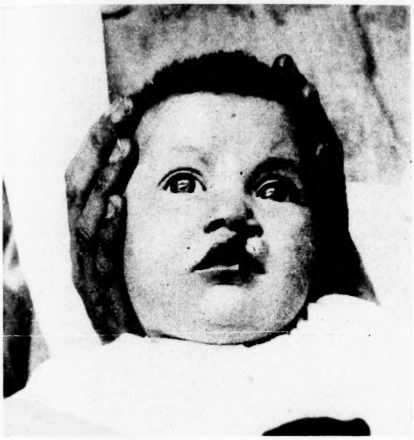

FIG. 1.—Single complete hare lip with complete cleft palate.

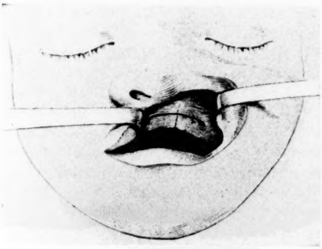

FIG. 2.—First step in operation: Cheek freed on either side of defect. Alveolar line restored and held with silver wire placed between tooth sacs.

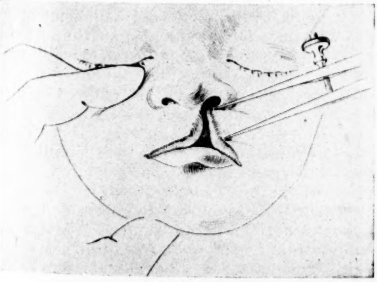

FIG. 3.—Desired height of lip measured with calipers and marked on both sides as indicated.

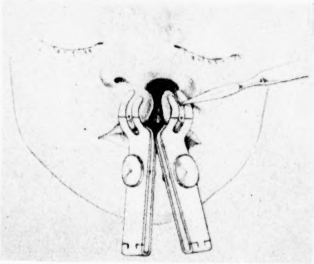

FIG. 4.—Clamps applied with puncture of calipers between cross marks. Incision made with knife in slot of clamps.

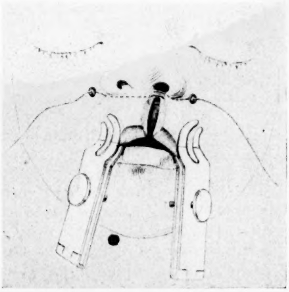

FIG. 5.—Clamps applied at angle of mouth to control hemorrhage. Figure of eight stitch applied to approximate ala.

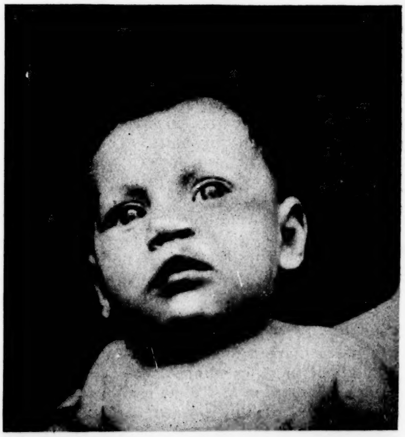

FIG. 6.—Same as Fig. 1 ten days after operation with stitches removed.

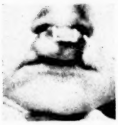

FIG. 7.—Double hare lip with protrusion of intermaxillary bone. Incisions make intermaxillary tab into three sides of a square. Incision of cheek on either side is the same length as one of incisions in intermaxillary tab.

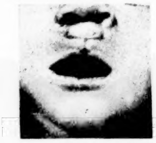

FIG. 8.—Method of turning down flaps from either side and uniting.

who is to operate at the time of the child's birth, or unduly delaying the operation, has given us many unnecessary problems and has been partly the cause of some failures or fatalities.

Improper feeding, with a resulting poorly nourished or emaciated baby, is a contraindication to operation. Under such circumstances the operation should be delayed until the general condition of the baby is satisfactory. It is also unwise to operate in the presence of otitis media, pharyngitis or any local skin infection. A routine urine examination should always be made and operation postponed until the acetone test is negative.

I have personally operated on 212 patients with hare lip at the Children's Hospital and in private practice. In this series there were six deaths and three failures of union. One death was due to suffocation in a feather pillow ten days after operation; one death was due to an overdose of morphine two days after operation —both entirely inexcusable. One death was due to pneumonia 15 days after operation; one death was said by the pathologist to have been due to an enlarged thymus—always a questionable cause of death, in my mind. The causes of the other two deaths, which both occurred within two or three days after operation, were unknown. Of the three failures of union, one was caused by infection developing subsequent to an otitis media, and the other two either from poor judgment in selecting the time of operation or from faulty technique. The remaining 203 cases showed results of varying degrees of success, some better than others. While these results are capable of considerable improvement, I believe they compare sufficiently favorably with those obtained in other clinics, to warrant the more general adoption of the main principles. We are constantly working toward further refinements of technique and more careful preoperative and postoperative care of the patient.

I will now take up the details of the operation with lantern slides.

DISCUSSION OF DR. LADD'S PAPER.

DR. HERBERT L. SMITH, Nashua, N. H.: The two important things which I found necessary are to free the upper teeth, as the doctor said; and oftentimes I found it necessary to carry the dissection up to the orbit and free the alae and the sides of the nose; and then doing what the doctor does. It is evident that to get a certain amount of height where the union is to take place, if you make a very long, oblique incision, the farther you cut out laterally the longer the lip will be after the flaps are brought together, and it is difficult not to have a little of the vermilion border showing on the curve because there is always a rolling up of the vermilion border on the side of the hare lip. If that incision is made and a far out oblique incision is made, and then bringing it in, invariably the lip will be high enough, and you will get a normal vermilion border. And then in those cases where there is a premaxilla I think it is oftentimes better to cut away all the tissue at the center, to get that plastic result, and remove that tissue from underneath the nose over the bone, because you can easily make lateral incisions from each ala out into the cheek and in this manner form a new upper lip, and so have then only one vertical incision, and the side incisions are not very noticeable.

TUBERCULOUS CERVICAL ADENITIS IN CHILDREN.*

BY JAMES S. STONE, M.D., BOSTON.

TUBERCULOUS cervical adenitis in children differs in many essential particulars from the same disease in adults.

A varying proportion of cases in children has been proven by different observers to be of the bovine type. In all probability a much larger proportion than has been definitely proved is due to milk-borne infection. I quote from a clinical history which illustrates this point: "The child was breast fed for six months and then on a Grade A milk. Four months ago the family moved and began obtaining milk from a small local dealer. A month later the child had a head cold with some cough and a few days later a swelling at the angle of the jaw." In this case, tubercle bacilli were found in smears from the glandular abscess which was opened and the affected glands showed acute caseous tuberculosis.

An illuminating demonstration occurred lately in a very high grade dairy, the milk from which was certified. The ownership changed hands and the new owner added some cows to the herd. A small epidemic of tuberculous cervical adenitis followed in children fed on the certified milk from that dairy, which was regarded as one of the best in the community. An extra tuberculin test showed about a dozen cows reacting and one of these was found to have a tuberculous udder. I happened to see three cases of this special group. One baby with active tuberculosis of tonsils, adenoids and glands finally succumbed to tuberculous meningitis after having a tuberculous otitis media and mastoiditis.

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*Read before the New England Surgical Society, September 22, 1922.

Another illustration occurred a few years ago in a town not far from Boston. Several families secured their milk from a neighbor who kept a few cows. From one of these cows there originated five cases of tuberculosis among children. One died of tuberculous peritonitis, one of tuberculous meningitis. Three recovered from tuberculous cervical adenitis.

Yet every week cows are shipped into the Brighton Market from all over New England which are insured against a positive tuberculin reaction by "plugging" with a dose a fortnight before the official test is to be made. These are the cows from which the dairymen about Boston recruit their herds.

These cases are mentioned in detail because they show so clearly the nature of tuberculous cervical adenitis in children.

The disease, in the beginning, is a local infection entering through the lymphoid tissue of the tonsils, usually; at times, through the adenoids, and at times through the bowel, involving mesenteric glands or peritoneum.

The involvement of the cervical lymphatics is necessarily a secondary manifestation. There must have been a preceding infection in the tonsillar or adenoid tissue or at some other point in mucous membrane or skin. Excluding the exceptional locations of primary infection and consequent glandular involvement, we have to deal with the common type of cervical adenitis where the tonsillar glands are involved. These lie directly below and behind the angle of the jaw, close to the anterior border of the sterno-mastoid, adjacent to the great vessels. This location means that the infection entered through the tonsils, and that complete eradication of the disease is not accomplished by the removal of the secondarily involved glands. The primary focus may be very small, often only the size of a pin head. Occasionally, tuberculosis of the tonsil cannot be demonstrated. It seems as if the bacilli occasionally passed directly through the tonsil without affecting it. In any case, the gross appearance of the tonsil usually gives no indication whatever of the condition which is present within it.

The appearance of tuberculous glands behind the sterno-mastoid at practically the same level means, as has been demonstrated frequently, a primary tuberculous infection of the adenoids.

There is little evidence that carious teeth directly lead to tuberculous infection. Of course, it is possible that infection may occur in the adjacent mucous membrane; but the great danger from decayed teeth lies in the fact that they form a nidus in which bacteria may develop, later to cause infection in the tonsils.

No treatment of tuberculous adenitis is adequate which does not remove the cause. The patient must be guarded against reinfections from without and also against reinfection of fresh glands from diseased tonsils or adenoids or, in exceptional cases, some other primary focus. The complete removal of all lymphatic channels is not essential in tuberculosis as it is in malignant disease. I do not intend to advocate careless, inadequate traumatizing dissections, when I point out that the smallest particle of malignant tissue in the lymph channels may mean death from recurrence, whereas the patient can usually readily overwhelm a few scattering tubercle bacilli.

In adults, tuberculous cervical adenitis is seldom milk-borne. It may be a secondary manifestation of tuberculosis elsewhere. Even in cases in which the tonsillar glands are involved the infection may enter the tonsils from the patient's own sputum. Occasionally such cases are seen in children, more often in infants. In them the disease is at times extensive. The mortality in such cases is considerable. But these exceptions do not disprove the contention that the ordinary type of tuberculous cervical adenitis in children is at first a disease purely local and entirely curable by complete eradication of the diseased tissues.

There is not a man in this room who would not choose a non-operative method of treatment in any disease if it gave results comparable in efficiency, certainty, safety and promptness to those obtained by operation. It is because we at the Children's Hospital do not know of any other method as satisfactory that we advocate the method of excision which we have adopted in 402 cases in the ten years 1912-1921. This does not mean at all that every case is to be operated upon. Nothing can be more unsatisfactory than the attempt to dissect out diseased glands in the presence of any acute inflammation. The danger of spreading disease by operating in this stage is considerable. Dissection of glands where there is a non-encapsulated abscess is not satisfactory. Dissection of glands where they are so extensive and where the distribution is such as to indicate systemic disease or where systemic disease is evident is not ordinarily advisable. But excision of the diseased tissue is clearly indicated in the case of discrete tuberculous adenitis and in the case of definitely encapsulated caseous glands. In those cases our results have been excellent. As compared with the 402 cases so treated in the last ten years we have treated 200 cases in the house by other operative measures than excision, and have treated many more in the Out-Patient Department by various measures.

Our results are not uniformly satisfactory. Of the 602 cases treated in the house by excision of glands or by incision and drainage of abscesses or by other measures, there have been eight deaths, a mortality rate of 1 1-3 per cent.

Some of these deaths were among children overwhelmed by systemic involvement; some were from meningitis, both before and after operative interference; a very few were probably to be attributed to real errors in surgical judgment. There has been a mortality of about 1-3 of 1 per cent. in the cases properly classed as those in which complete eradication of the disease could be expected. In any operative interference with tuberculosis there is always a certain risk of meningeal infection.

Tuberculin has been used but little. It has not usually been needed in the cases where the disease could be eradicated. It has seemed in most of the more acute cases as if the patient was getting sufficient reaction from the disease itself.

The x-ray has been used after operation on chronic ulcers and sinuses and with many excellent results. The radiologists are now pointing out the dangers of x-ray treatment in cases in which there is no sinus to allow vent for broken-down tuberculous tissue.

A year ago the paper which pointed out so clearly the danger to the spinal accessory nerve aroused much interest and discussion. I have been able to find only one case of those operated upon at the Children's Hospital in which the spinal accessory nerve has been paralyzed.

The dangers incident to operation are of two classes. The first is damage to important anatomical structures. The danger from damage to blood vessels is not regarded as serious. The external jugular vein is often cut and tied at the very beginning of the operation though the incision may be kept in front of it. Branches from the internal jugular vein are always cut, but the internal jugular and the anterior jugular, though always close to the field of operation, should never be injured, and in fact have not been injured in the cases operated upon. A small branch may give trouble if cut close to a large vein. Damage to corresponding arteries may occur. The smaller arteries are often cut and tied but the larger vessels are not injured.

The structures which we constantly have in mind are the nerves, the spinal accessory nerve especially. We recognize that it is an impossibility for anyone to do a bloc dissection of the groups of glands involved in infections starting in the tonsils without severing the spinal accessory nerve in two places, because the nerve in its first portion runs for a considerable distance directly between the groups of enlarged glands. For this reason we have regarded bloc dissection as absolutely unjustifiable in tuberculosis, and we further regard it as wholly unnecessary. The conditions which are to be met and overcome are totally different from those encountered in malignant disease. We believe that all the diseased glands should be removed by as clean a dissection as is possible, and without the rupture of the broken-down glands, but we do not feel that it is essential to remove all lymph channels as must be done in malignancy.

The spinal accessory nerve lies in a rather loose layer of connective tissue which covers the deepest glands. In some instances these very deep glands are not diseased. If the tuberculous process is extensive they always are diseased. If the disease in them is marked, then the layer of connective tissue lying outside these glands becomes very poorly defined. There is practically very little line of cleavage between the deeper and more superficial glands, and in some of these cases the danger of injury to the spinal accessory nerve is great. But if the danger is recognized it can be avoided. Behind the sterno-mastoid muscle the danger of injury to the spinal accessory is very great, and I think that a large proportion of the reported injuries to the nerve must have occurred at this point.

The skin on the posterior triangle is much thicker and is more intimately connected with the underlying structures than in the anterior triangle. In the presence of any inflammation the brawny induration which results increases greatly the adherence to underlying tissues. The nerve is much more superficial in its posterior portion and the glands, which may be diseased, are often more deeply situated than is the nerve. Thus the danger of wounding the nerve is great. There is no satisfactory landmark or method of identifying the nerve with certainty. The chance of confusing the spinal accessory with some of the various sensory branches reaching out from behind the sterno-mastoid is very great. Under no circumstances after any nerve is seen reaching down and back from the sterno-mastoid muscle is it safe to assume that this is the spinal accessory and that it is safe to cut freely into adjacent tissues.

The nerves which we fear to injure and which too often are injured are the lower fibers of the facial, where they pass across the angle of the jaw to go to the corner of the mouth. The damage done in these cases is immediate and irreparable, though in time there is some restoration of function, but a permanent muscular weakness remains. The pneumogastric and phrenic nerves must be kept in mind.

The second and the really great danger in the surgical treatment of tuberculous adenitis is the risk of setting up an acute miliary tuberculosis or a tuberculous meningitis. This risk is always present whenever surgical tuberculosis of any sort exists. It may occur without surgical intervention. The risks of meningitis depend upon the severity and activity of the infection, upon the power of resistance of the patient and upon the avoidance of trauma which may set free organisms. Although tuberculous meningitis may occur without any recognized trauma or surgical intervention, it must be recognized that operative interference with tuberculosis, no matter how carefully it is undertaken, may lead to disaster. Recently I have lost a baby from tuberculous meningitis. A couple of years ago I lost a girl from acute miliary. In each instance both tonsils and adenoids showed active tuberculosis; in the case of the girl the tuberculosis was shown to be extending directly into the peritonsillar tissues. Both cases were operated upon reluctantly and in full realization of the risks involved. In one case a clean dissection was done; in the other abscesses were opened and the caseous material curetted out.

In conclusion I believe:

(1) That we should recognize and eradicate the disease in most cases of tuberculosis of the cervical glands in children and should do this while the disease is still localized in tonsils, adenoids and glands.

(2) Excision should not be attempted in the presence of acute inflammation or in spreading abscesses.

(3) The results of operative excision of the glands through a skin-fold incision are excellent.

(4) Injury to the spinal accessory nerve is an extremely rare accident but is inevitable if a bloc dissection is done.

(5) Injury to the lower branches of the facial nerve is to be guarded against constantly and sometimes cannot be avoided.

(6) The danger of the spread of tuberculosis either in the form of acute miliary or in the form of meningitis is a definite danger and one which exists even without treatment of any sort and with treatment by x-ray.

(7) The nature of the pathological process which is present, the probable natural course of the disease in each case if left untreated, and the results which can be accomplished by different methods of treatment should determine the methods to be followed.

(8) Prevention of tuberculosis by good hygiene is most important. The steady improvement in our milk supplies is shown not only in the disappearance of summer diarrheas of infants but also in the lessened frequency and severity of tuberculous adenitis in children, but much room for improvement still exists.

DISCUSSION OF DR. STONE'S PAPER.

Dr. Frederic V. Hussey, Providence: Dr. Stone's paper is a well worked out paper, it seems to me, and I want to congratulate him on it. It seems to me he has summed up very well indeed, according to my opinion, the present-day views among surgeons in regard to tuberculous cervical adenitis.

First, I believe that much more attention should be paid to the prevention of this disease. As a great many of these cases are of bovine origin, the milk supply should be thoroughly inspected, so as to do away as much as possible with the possibility of infection. Another point is this: tuberculous infection of the glands of the neck is a secondary affair; and I believe that unless we eradicate the primary focus, we are going to have frequent occurrences of this trouble following operation; and I believe that this is one reason why this operation has been more or less discredited in the past. The infection of these glands comes in, of course, through the tonsils or adenoids, or through some break in the mucous membrane. In the early cases, according to the group of glands involved originally, it is at least a fairly easily determined thing to find where the point of entrance of the infection is; and I believe that it is not a complete operation simply to dissect out the glands and leave the original focus.

In regard to operation on these cases, I thoroughly agree with Dr. Stone that, with a few exceptions —which he has well mentioned—a good, thorough, careful, complete dissection is the type of operation to perform. I believe also that in the past operation has been discredited a great deal on account of inefficient methods of operating. I don't believe that simple incision or curettage has been sufficient to produce the results which we should get. I think that originally when these glands are discrete and well localized when we haven't the secondary involvement of cellular tissue due to rupture of the capsule, that a thorough, complete and careful dissection, not necessary to the limit of removing every bit of tuberculous tissue, is the type of operation indicated. I can't see how this method of treatment can be discredited in view of the success it has had in the hands of Dowd of New York and Stone of Boston, and others.

As regards x-ray treatment, it seems to me that if we are going to make any concession to it at all, we might make concessions where operation has been refused by the parents of these children, or where operation can be followed up later by x-ray. I don't believe that I would depend on that alone as the only method of treatment in these cases.

Tuberculin I have never had experience with myself, but after some length of time at the Out-Patient Department of the Rhode Island Hospital, where it was tried on a series of cases, while we saw some good results, they were not enough to encourage us to carry it out as a routine. It is a long, tedious treatment, and I have discarded it entirely as routine.

Dr. Charles G. Mixter, Boston: There is very little further to say in discussing Dr. Stone's paper because he has so adequately covered the ground, and his views coincide with ours as obtained at the Children's Hospital.

With regard to our views of the surgical treatment of this condition, I want to emphasize a few points; and one is the necessity of closing the portal of entrance. That is essential in any form of tuberculous infection in which you hope to get a cure by surgical methods.

In the second place, I have a case in point which is very interesting, taken in connection with what Dr. Stone said about a certain herd being responsible for a number of cases of bovine infection. One of these came under my observation—a case of fatal tuberculous peritonitis—and the infection through milk supply was traced back to the infected cow in the same herd to which Dr. Stone referred.

We must recognize that tuberculosis in infancy and childhood can be a serious surgical problem, the technical and surgical difficulties of which may be very great; and in undertaking any radical treatment you must remember that you run the risk of a surgical acidosis, and so I think it is wise to start an anti-acid treatment before operation to increase the resistance by suitable means. But in weighing the surgical procedure one should bear in mind not only the question of mortality, but also that of cosmetic results. If you are going to get bad cosmetic results by treatment in a disease which is menacing to health but not to life, you have got to discard that treatment and find something else. In a number of cases you get good cosmetic results by the oblique incision. If, however, the sinuses present are high enough to necessitate an incision less than a thumb's breadth below the angle of the jaw, you are apt to get a facial paralysis which may be temporary or permanent; though in the cases I have seen the condition has improved even after one year or two years.

With regard to spinal accessory paralysis, the only case I have happened to have personally seen in which there was a definite spinal accessory paralysis occurred in a small tuberculous abscess on the outer side of the sternomastoid, and the nerve had been cut directly across in making a medical incision into this small abscess cavity which lay directly beneath the skin. In the more radical procedures I have never seen a section of the spinal accessory nerve. The results I think establish the value of the radical operation in a certain group of cases. Where, however, we have a persisting sinus, there I think we have a great field for the use of the x-ray. X-ray treatment will clear up those sinuses rapidly.

Dr. F. H. Lahey, Boston: Last year the paper read on spinal accessory paralysis was directed particularly against block dissection. Inasmuch as many of the cases reported of spinal accessory paralysis were cases which occurred in the hands of fellows of this Society, including my own, I believe that spinal accessory paralysis is a distinct possibility, and operations should be done with this in mind.

I agree with Dr. Stone that if one does not dissect the glands which are inflamed and necrotic, the trouble will be less apt to recur. I do not understand how we can deal in children with necrotic glands on the posterior side of the sternomastoid; and I would like to have Dr. Stone tell us how he handles these glands in which the spinal accessory nerve is *situated* in a necrotic mass.

With regard to facial paralysis, the branch that is injured is the submaxillary branch of the facial, which supplies the depressor anguli oris. A great many of these cases will cure themselves spontaneously in time. It is probable that they are injured by traction, by pressure, or by exudate; but if they do not clear up and the patient persists with a one-sided smile, there is a little trick by which you can make the face symmetrical. You can cut the nerve on the other side with a tenotome under the skin as it ascends over the inferior maxilla to reach the depressor anguli oris. The only annoyance following this procedure is that the patient is unable to pull the lip down.

Dr. S. A. Mahoney, Holyoke: I would like to inquire of Dr. Stone at what age he would do the operation on the tonsils and adenoids in the presence of tuberculous cervical adenitis, and how extensive an operation he would perform; whether he would do the whole thing in one or two stages. taking out the glands of the neck at the second stage. That question was brought to me in a startling manner by seeing a surgeon in a clinic in the Middle West take them all out at one sitting. The glands were discrete, and the operation took only a short time, but the child died within half an hour after the operation.

Dr. George C. Wilkins, Manchester: I have treated a number of cases of tuberculous cervical adenitis with radium, and the results have been very satisfactory. There have been two groups, the first group in which the glands have not become caseous. To obtain the satisfactory results without any operation at all, the radium treatment must be applied before caseation has begun. In the first place, what is called an erythema skin dose is necessary to bring about a change in the size of the glands. After six weeks there is a noticeable diminution in the size, this diminution progresses, and there is left a hard nodule which, however, does not entirely disappear. The lymphoid tissue is peculiarly affected by radium, and a fibrosis results which accounts for the small nodule which is left. These cases have been both in children and in adults. In the treatment of the second group, where the lymph nodes have become caseous, I have opened and curetted them, and inserted radium in the cavity, leaving it there for a number of hours. The reason for this is that the wound heals very much more quickly than under surgical measures alone, and as all caseous glands are accompanied by tuberculous glands adjacent, which are not caseous, the radium produces fibrosis of the neighboring glands. I think it was Dr. Boggs of Pittsburgh who stated after reporting several hundred patients treated in this way that 80 per cent. of the cases of tuberculous glands of the neck were amenable to this form of treatment, and successful results would follow.

Dr. James S. Stone, Boston (closing): In answer to Dr. Mahoney's question as to removing tuberculous glands and tonsils and adenoids at the same time: first, in the very early cases we take out the tonsils and adenoids, and see if the glands go down. If the glands are not extensive, and the patient is in good condition, we take out the glands first, and then at the same sitting, if the child is in good condition, take out the adenoids and tonsils. If the child is not going to go through it we postpone removing the tonsils and adenoids until later.

With regard to Dr. Lahey's question about posterior caseous glands—it is a difficult proposition. We see this condition in the neglected cases; it occurs late. We can often get out through an anterior incision a lot of the glands which lie in the posterior triangle; get out those covered by and some posterior to the sternomastoid muscle. Where they have softened posteriorly, I believe in letting them break down thoroughly, and then curetting with the utmost care so as not to injure the nerve.

There is one thing I would like to say about the technique of curetting caseous glands, not where the disease is extremely extensive, but where it is moderately extensive, and there is no satisfactory chance to do a clean dissection. In these cases we make a relatively small incision, put in retractors, and curette thoroughly under vision. We clean out as a dentist would clean out a cavity in a tooth, getting out every particle of diseased tissue. We must usually go through the hole in the fascia to the deep glands far inside. We must see into this cavity and curette it all out. Then with gauze we pack every corner of the cavity, taking care to pack in the same amount of gauze as there was caseous material before, so that gauze lies in contact with every part of the wall of the cavity. We leave that gauze in for six to eight days. It is then nasty; full of pus. We can pull it all out readily, as granulation tissue has just started. There isn't enough granulation tissue to cause any bleeding, but the walls of the cavity will fall together, and they will frequently heal without any further dressing. We put nothing else in.

Case Report.

VENTRICULOSCOPY AND PUNCTURE OF THE FLOOR OF THE THIRD VENTRICLE.

PRELIMINARY REPORT OF A CASE.

BY W. J. MIXTER, M.D., BOSTON.

I HAVE been much interested for the past year in the development of ventriculoscopy owing to the possibilities it offers not only in diagnosis, but operative procedures. The ventricle was cystoscoped once about a year ago, but the measure was rather unsatisfactory owing to the type of instrument used.

Dandy[1] has performed ventriculoscopy successfully, but feels that the indirect method of ventricular examination is so satisfactory that ventriculoscopy will be used only occasionally. In another communication[2] he describes briefly the operative steps necessary to reach and open the floor of the third ventricle from below by means of a frontal approach. This operation must be one of considerable magnitude with a high mortality, but the principle of puncture of the third ventricle is sound. In a cursory examination of the literature I have been unable to find mention of puncture of the ventricular floor from within either by open operation or with the operating cystoscope. After considerable delay, due to the difficulty of obtaining the brain of a hydrocephalic infant, such a specimen was obtained, hardened *in situ* and the ventricles explored with a direct vision operating urethroscope, and it was found that the third ventricle was easily accessible. A small sound passed through the urethroscope could then be gently pushed through the floor to the third ventricle and the opening thus made communicated directly with the interpeduncular cistern. This seemed a rational method of attempting to permit, in cases of noncommunicating hydrocephalus, the evacuation of cerebrospinal fluid into the subarachnoid space.

ABSTRACT OF CASE RECORD.

L. P., age 9 mos. Mass. General Hospital. No. 254437. First admitted to M. G. H., Aug. 29, 1922, at age of four months. Weight eight pounds at birth, normal delivery.

At three months mother noticed that the child's head seemed large and since that time the head has steadily increased in size. There have been no other symptoms. Examination negative except for marked hydrocephalus with a tense bulging fontanelle. Four c.c. of indigocarmine was injected into the ventricle and repeated lumbar punctures performed. No dye had come through at the end of three quarters of an hour. Ventriculography was performed and showed simply a very severe hydrocephalus. At this time the head measured eighteen inches in circumference. The ventricle was tapped three times while in the hospital, but would fill up within a few days to the same extent as at entrance. The baby developed pneumonia and was in the hospital until November 11, 1922.

At time of discharge, the circumference of the head was nineteen and one-eighth inches. The child remained at home for a time and was then admitted to the Peter Bent Brigham Hospital. Ventriculography was done and repeated tappings made. The head has continued to increase in size since her discharge. The child is restless and does not take her feedings well.

Re-admitted to the M. G. H. Feb. 5, 1923.

Typical, extreme, hydrocephalic baby, eyelids drawn up, marked nystagmus, circumference of head twenty-two inches, cranial bones thin and flexible, fontanelle very large, bulging and extremely tense.

On February 6, 1923, under ether anaesthesia, an opening was made through the fontanelle in the right temporal region and the brain exposed. A small incision was made in the dura and a direct vision urethroscope passed into the ventricle. Under visual guidance the urethroscope was passed through the dilated foramen of Munro and the third ventricle explored. The dilated aqueduct could be easily seen, but could not be entered with the urethroscope. Under visual guidance, a flexible sound was pushed through the floor of the third ventricle and the opening was enlarged by moving the sound from side to side until it was about four mm. across. The edges of this opening immediately began to vibrate, apparently due to the passage of a current through the opening and this continued during the short period that the opening was under observation. The urethroscope was withdrawn and the dura and scalp closed with fine silk.

During the ten days following the fontanelle remained soft and was retracted if the head was not bandaged.

On Feb. 16, 1923, simultaneous lumbar and ventricular punctures were performed. Manometric readings were identical, showing 90 mm. pressure. On withdrawal of fluid from the lumbar space the pressure in the lumbar needle dropped, but soon rose to equal that in the ventricle. Finally, 4 c.c. of indigocarmine solution was injected into the ventricle and the dye appeared at the lumbar needle in 30 seconds.

The circumference of the head had decreased one and one-half inches.

It is naturally too early to tell whether or not the operation will be successful, but the observations made so far are distinctly encouraging and warrant a further trial of this method.

NOTE, FEB. 21, 1923.

Since writing the above, Fay and Grant's article[3] in the last number of the *Journal of the American Medical Assn.* has come to hand. Their work proves the feasibility not only to ventriculoscopy, but the preservation of a photographic record of observations so made. Mention is also made of the intention of puncturing the corpus callosum through the operating cystoscope though the procedure was not carried out.

I believe that puncture of the ventricular floor in cases where there is sufficient dilatation of the foramen of Munro to permit access to the third ventricle, is easier and that it will prove more satisfactory than puncture of the corpus callosum, though time alone will tell.

REFERENCES.

1 Dandy, W. E.: Johns Hopkins Hosp. Bull., 33:189, May, 1922.
2 *Ibid.*
3 Fay, Temple, and Grant, F. C.: Jour. Am. Med. Assn., 80:461, Feb. 17, 1923.

Book Reviews.

Aids to Tropical Hygiene. By COLONEL R. J. BLACKHAM, C.B., C.M.G., C.I.E., D.S.O., M.D., F.R.F.P.S., M.R.C.P.E., D.P.H. (London), etc., etc. Second Edition. New York: William Wood & Co. 1922.

The purpose of this little book, as stated in the author's preface, is to "furnish the junior practitioner with a handy pocket-book containing a summary of the main facts with which the Health Officer in the tropics must be acquainted." It is further stated that this edition has been largely rewritten, in order to keep pace with recent advances.

This manual contains 240 pages. The arrangement is systematic, the print good, and a wide range of useful information is concisely presented. The book should fill a useful place for ready reference wherever circumstances render it difficult or impossible to gain access to more complete works on tropical hygiene and sanitation.

Practical Physiological Chemistry. PHILIP B. HAWK. Eighth edition. P. Blakiston's Son & Company. Philadelphia. 693 pp. Price $5.00.

The seventh edition of this useful and popular book appeared less than eighteen months ago and although much has remained unchanged in the present edition, some distinctly important new material has been introduced. The latter includes, for example, an experiment on rats with rachitic and antirachitic diets; such an experiment, combined with those on other diets already incorporated, serve to emphasize the fundamental importance of "vitamins," individual proteins, salts, etc., however much discredit is being thrown upon work on some of these by certain kinds of commercial exploitation. Other additions are descriptions of Folin's and Benedict's latest methods for the determination of albumin and sugar and new sections on acidosis and kidney functions. The book continues to be a very practical laboratory guide and contains few references to newer work on colloids and other subjects of much theoretical interest but the immediate practical value of which is at present not very obvious.

Mental Deficiency (Amentia). By ALFRED FRANK TREDGOLD, M.D., M.R.C.P., F.R.S.Ed., Lecturer on Mental Deficiency at London University; Physician to Out-Patient Department, and Lecturer at Bethlehem Royal Hospital; Physician and Neurologist to Royal Surrey County Hospital, etc. New York: William Wood & Co., 1922. Fourth edition. Pp. xx+569. Price $6.00.

In this fourth edition the author has thoroughly revised a book which has won universal recognition as a well balanced presentation of the facts connected with the very important problem of mental deficiency, a problem with wide medical, educational and social bearings.

The division of the book remains practically the same as in the previous editions with slight variations when it comes to the problems of delinquency in relation to mental defect. The recent wide-spread attention given to the question of mental tests in general has necessitated rewriting the chapter which deals with this topic, a chapter of only twenty-five pages which covers in addition the clinical examination, and the investigation of the family history and of the developmental factors. The author makes no attempt to discuss in any detailed manner the comparative value of different scales nor does he scrutinize very carefully the limits of the application of such tests, their special value and their special dangers.

The book is clearly written, well arranged and well balanced, so that it can be confidently recommended to the medical student and general practitioner as a guide in a subject which is steadily gaining in importance.

The Massachusetts Medical Society.

PROCEEDINGS OF THE COUNCIL.

Stated Meeting, February 7, 1923.

A stated meeting of the Council was held in John Ware Hall, Boston Medical Library, February 7, 1923, at 12 o'clock, noon. The President, Dr. John W. Bartol, was in the chair, and the following eighty councilors present:

Berkshire.
Henry Colt.
A. P. Merrill.
Bristol South,
C. T. Leary.
Essex North,
J. Forrest Burnham.
T. R. Healy.
G. E. Kurth.
Essex South,
Loring Grimes.
W. T. Hopkins.
P. P. Johnson.
J. F. Jordan.
G. M. Kline.
Franklin,
G. P. Twitchell.
Middlesex East,
L. M. Crosby.
Middlesex North,
W. B. Jackson.
J. A. Mehan.
Middlesex South,
E. H. Bigelow.
E. W. Barron.
F. G. Curtis.
W. E. Fernald.
F. J. Goodridge.
C. E. Mongan.
C. F. Painter.
W. D. Ruston.
J. W. Sever.
E. H. Stevens.
A. K. Stone.
Fresenius Van Nüys.
G. W. W. Whiting.
W. S. Whittemore.
Norfolk,
E. H. Baxter.
D. N. Blakely.
A. N. Broughton.
W. L. Burrage.
D. G. Eldridge.
G. W. Kaan.
Bradford Kent.
K. G. Percy.
H. H. Powers.
Norfolk (*continued*),
Victor Safford.
Augusta Williams.
Norfolk South,
O. H. Howe.
Plymouth,
A. L. Beals.
W. C. Keith.
Suffolk,
J. S. Stone.
S. H. Ayer.
J. W. Bartol.
V. Y. Bowditch.
Robert Bonney.
J. E. Briggs.
M. E. Champion.
Lincoln Davis.
G. S. Hill.
W. C. Howe.
H. T. Hutchins.
Donald Macomber.
G. B. Magrath.
R. H. Miller.
J. J. Minot.
W. H. Robey, Jr.
Stephen Rushmore.
C. L. Scudder.
C. M. Smith.
E. W. Taylor.
F. H. Williams.
Worcester,
F. H. Baker.
W. P. Bowers.
L. R. Bragg.
W. J. Delahanty.
M. F. Fallon.
J. J. Goodwin.
R. W. Greene.
David Harrower.
E. L. Hunt.
A. G. Hurd.
A. W. Marsh.
L. C. Miller.
G. O. Ward.
F. H. Washburn.
S. B. Woodward.
Worcester North,
J. G. Henry.

The Secretary read the record of the last meeting in abstract and as there were no errors or omissions noted, the record as printed was accepted by vote. The President made the following remarks:

Since the October meeting of the Council death has claimed two valuable members. Robert W. Hastings of Brookline died on October 13, at the age of 56. Dr. Hastings was an A. B. and A. M. of Amherst and an M. D. of Harvard. He early devoted himself largely to the practice of pediatrics, and held the post first of resident physician and later that of visiting physician to the Floating Hospital. He succeeded Dr. E. W. Cushing as editor of the *Annals of Gynecology and Pediatry*, a position which he held at the time that journal ceased publication; he was inspector of the Board of Health of Brookline, was instructor in Theory and Practice and was connected with the Department of Pediatrics at Tufts. Dr. Hastings displayed an unflinching courage in the face of advancing cardiac disability and an insistent sense of duty which kept him face to face with his service to his patients until the very end when he was compelled to give up—a most inspiring example.

Dr. Thomas F. Greene died in Dorchester on October 24 at the age of 60. Dr. Greene was a printer by trade but cherished an undying determination to practice medicine; he studied medicine, got his degree at the age of 32, plunged at once into a very active life and very soon became prominent in the practice of obstetrics, which was his chosen field though not an exclusive field; he was connected with St. Mary's Infant Asylum, St. Margaret's Hospital, The Hart Private Hospital, taught in obstetrics at Tufts College Medical School, was extremely prominent and much beloved in his community. In 1916 he was President of the Norfolk District Medical Society. As an ardent Catholic he took a leading part in the social activities connected with his faith. His interests were broad and working always with unquenchable zeal he presented altogether a very striking instance of eminent success achieved through personal qualities and capacity.

Dr. K. G. Percy, Chairman of the Committee of Arrangements, spoke of the plans that had been made for the annual meeting of the Society in Pittsfield, next June. Although an innovation, there were indications that the meeting would be a popular meeting; it was hoped that many fellows would attend and bring their families; the local committee of arrangements had made special provision for the entertainment of the families; Pittsfield was a fitting stopping place on a motor trip through the Berkshires, at that time in their greatest beauty; the scientific sessions had been made as concise as comported with accuracy and fullness; the social features would be exploited freely. He outlined the plans as follows:

Tuesday, June 12. Golf at two country clubs in the vicinity, during the morning. Three Section meetings beginning at 2 P. M. Meeting of the Supervisors at 4 P. M. Meeting of the Council at 4.30 P. M. Tea served in the Maplewood Hotel, the headquarters, at 6.30 P. M. to fellows and their families. Shattuck Lecture at 8 P. M., followed by a reception to the president, dancing and a substantial supper.

Wednesday, June 13. Meetings of the three remaining Sections at the Maplewood, 9.30 A. M.

Meeting of the Society at 12.30 for the business meeting; annual oration at 1 P. M. Annual dinner at 2 P. M., and end of anniversary. Late afternoon, motor trips about the Berkshires or more golf. A ladies' committee will look out for the families of fellows on both days and will have cars at command for sightseeing trips.

It is impossible for us to reckon on the number that is coming but we are going to give the meeting all the publicity we can. We have planned to send preliminary notices with return postcards, to send a second reply postcard in May and a third, just before the date of the meeting. It will be our recommendation as a committee that as you are going so far out of Boston that the expense of the annual dinner be included in the budget, and it has been so carried on an estimate of $2.50 per plate. The Cotting lunch will be changed to a Cotting tea, the expense, as usual, being covered in part by the Cotting fund. It is impossible to give an itemized account of what the expenses will be. Last year the meeting cost about $2400. We have asked in our budget for $2500, believing that we will come under that amount and believing that we can offer one of the best meetings as compared with years past.

Dr. A. P. Merrill, of Pittsfield, Chairman of the Local Committee of Arrangements, said: All I can say is that we are going to make arrangements for a meeting which we hope will be a real live, active meeting, and the only way we can make it so is to have all the people come, and come with the idea that they are going to have a good time. I know they will have a good time. We are going to rely on the beauties of the country and the social side to a great extent though there will be food for the mind. We are concentrating the section meetings to Tuesday afternoon and Wednesday morning so that you will have time before and after to take in the surrounding points of interest. There will be a number of ladies who will take delight in entertaining the lady visitors. Entertainments have been arranged at the country clubs. We hope you will turn out in large attendance.

The two things we plead with you are:—Come, come by all means; and the second thing is—Please answer the return postcard which we send. That is the only way we can get a line on what the attendance will be. Remember conditions are not as they are in this city where you can go out and get a bite to eat in two minutes. So we want to know what the attendance is going to be and we urge you to fill out and send the return postcards.

On motion, duly seconded, the report and recommendations of the Committee of Arrangements were adopted by vote.

Dr. D. N. Blakely, Chairman of the standing Committee on Membership and Finance, read the report of his committee on Membership and it was accepted and its recommendations adopted.

REPORT OF COMMITTEE ON MEMBERSHIP AND FINANCE, AS TO MEMBERSHIP.

The Committee on Membership and Finance makes the following recommendations as to membership:

1. That the following named 13 Fellows be allowed to retire under the provisions of Chapter 1, Section 5. of the by-laws:

1. **Bradford. Cary Carpenter, Southbridge, as of Jan. 1. 1923.**
2. **Brigham, Edwin Howard, Brookline, as of Jan. 1, 1923.**
3. **Clement, George Wilmot, Roxbury, as of Jan. 1, 1923.**
4. **Galligan, Eugene Thomas. Roxbury, as of Jan. 1, 1923. with remission of dues to that date.**
5. **Gavin, John Harrison. Roxbury, as of Jan. 1. 1922.**
6. **Irwin, Vincent Joseph, Springfield, as of Jan. 1, 1923.**
7. **Marcy. Henry Orlando, Cambridge, as of Jan. 1, 1923.**
8. **Munro. Walter Lee, Providence, R. I., as of Jan. 1, 1923.**
9. **Standish, Myles, Boston, as of Jan. 1, 1924.**
10. **Stickney, Clifford W., Holden, as of Jan. 1, 1923.**
11. **Temple, William Franklin, Boston, as of Jan. 1, 1923.**
12. **Wetherbee, Roswell, Putney, Georgia, as of Jan. 1, 1923.**
13. **White, Herbert Warren, Roxbury, as of Jan. 1, 1924.**

2. That the following named 5 Fellows have their dues remitted under the provisions of Chapter I, Section 6, of the by-laws.

1. **Cosgrove, Joseph Justin, formerly of Framingham, now of Greenville, S. C., for 1921 and 1922, provided he pays promptly his dues for 1923.**
2. **DeLangle, Charles Petit, Yountville, Calif., for 1923.**
3. **Gordon, John Hurter, Detroit, Mich., for 1921-22 (has paid 1923).**
4. **Lanpher, Howard Arthur, Hartford, Conn., for 1920-21-22 (has paid 1923).**
5. **Shinn, Philip Allen, Perryville, Md., for 1921-22 (has paid 1923).**

3. That the following named 19 Fellows be allowed to resign under the provisions of Chapter I, Section 7, of the by-laws:

- **1. Alcazar, Izak, Roxbury, as of Jan. 1, 1923.**
- **2. Audet, Charles Henry, Waterbury, Conn., as of Jan. 1, 1923, with remission of dues for 1920-21-22.**
- **3. Boyd, James Francis, Providence, R. I., as of Jan. 1, 1923.**
- **5. Churchill, Alice Symonds, formerly of Haverhill, Mass., now of Darlings Lake, N. S., as of Jan. 1, 1923.**
- **6. Cleaves, Helen Frances, Pacific Grove, Calif., as of Jan. 1, 1923, with remission of dues to that date.**
- **7. Cohen, Samuel Adams, Roxbury, as of Jan. 1, 1923.**
- **8. Cutter, Irving Taylor, San Antonio, Texas, as of Jan. 1, 1923.**
- **9. Dunn, Charles Hunter, Boston, as of Jan. 1, 1923.**
- **10. Fuller, Daniel Hunt, Philadelphia, Pa., as of Jan. 1, 1923.**
- **11. Gosline, Harold Inman, Howard, R. I., as of Jan. 1, 1923.**
- **12. Holden, William Daniel, Haverhill, as of Jan. 1, 1923 with remission of dues of 1922 (says he sent his resignation one year ago).**

13. Jordan, Frank Herbert, New Bedford, as of Jan. 1, 1923.
14. Livingston, William Kenneth, Eugene, Oregon, as of Jan. 1, 1923.
15. Looney, Joseph Michael, Towson, Maryland, as of Jan. 1, 1923.
16. Richards, Cyril Godfrey, Kenosha, Wis., as of Jan. 1, 1923.
17. Smith, William Lord, Brockton, as of Jan. 1, 1923.
18. Turner, William Kenneth, Portland, Me., as of Jan. 1, 1923.
19. Webster, George Arthur, Brattleboro, Vt., as of Jan. 1, 1923.

4. That the following named 2 Fellows be deprived of the privileges of Fellowship, under the provisions of Chapter I, Section 8, of the by-laws:

1. Garland, Roy, Gloucester.
2. Kilbourn, Arthur Goss, Groton.

5. That the following named 13 Fellows be allowed to change their membership from one district society to another without change of legal residence, under the provisions of Chapter III, Section 3, of the by-laws:

Seven from Middlesex South to Suffolk.

1. Bill, Jose Penteado, Wayland.
2. Day, Hilbert Francis, Cambridge.
3. Granger, Frank Butler, Allston.
4. Macomber, Donald, West Newton.
5. Mellen, Eleanor Way Allen, Newton Highlands.
6. Piper, Frank, Cambridge.
7. Viets, Henry Rouse, Newton.

Six from Norfolk to Suffolk.

1. Christian, Henry Asbury, Brookline.
2. Mason, Broadstreet Henry, Brookline.
3. Mella, Hugo, East Milton.
4. Perry, Henry Joseph, Brookline.
5. Tobey, George Loring, Jr., Brookline.
6. Watters, William Henry, West Roxbury.

David N. Blakely, *Chairman.*

Reports of the committees appointed to consider the petitions of D. H. Shulman and O. R. Fountain for restoration to the privileges of fellowship were accepted under the usual conditions and committees appointed to consider the five following petitions as noted:

For E. R. Messer: J. B. Thomes, I. S. F. Dodd, E. H. Taylor.

For S. S. Orr: G. W. Kaan, D. N. Blakely, H. H. Powers.

For M. P. Mahoney: J. A. Mehan, A. R. Gardner, W. M. Collins.

For O. M. Deems: A. G. Rice, M. B. Hodskins, E. P. Bagg, Jr.

For W. W. Bellamy: C. E. Allard, W. B. Batchelder, D. G. Eldridge.

On nomination by the Chair the following delegates to the Congress on Medical Education, Medical Licensure, Public Health and Hospitals at Chicago, March 2, 6 and 7, 1923, were appointed: C. F. Painter, J. B. Blake. These delegates to the House of Delegates of the American Medical Association, for two years from June 1, 1923, were duly appointed:

PRINCIPALS.	ALTERNATES.
F. B. Lund, Boston.	W. H. Robey, Boston.
E. F. Cody, New Bedford.	F. W. Anthony, Haverhill.

As delegates to the annual meetings of New England State Medical Societies the President nominated and the Council elected:

For Maine: C. A. Dennett, Arlington; F. M. Stiles, Waltham.

For New Hampshire: J. B. Blake, Boston; F. E. Sweetsir, Merrimac.

For Connecticut: W. A. Lane, Milton; H. F. R. Watts, Dorchester.

For Rhode Island: W. Y. Fox, Taunton; G. C. King, Fall River.

The report of the Treasurer and of the Certified Public Accountant; also the report of the latter as to the accounts of the *Boston Medical and Surgical Journal* for the year 1922, and the report of the Auditing Committee were presented by the Treasurer. (See Appendix Nos. 1 and 2). On motion, duly seconded and carried, they were accepted.

Dr. Blakely read the report of the Committee on Membership and Finance, as to Finance.

Report of Committee on Membership and Finance, as to Finance.

The Committee on Membership and Finance recommends the following budget for 1923:

BUDGET FOR 1923.

Income as estimated by Treasurer		$35,300
APPROPRIATIONS FOR EXPENDITURES.		
Salaries:		
Secretary	$1,500	
Treasurer	500	
Librarian Emeritus	400	
		$2,400
Expenses of Officers and Delegates:		
President	$200	
Secretary	900	
Treasurer	400	
District Treasurers	2,000	
Censors	700	
*Delegates to House of Delegates American Medical Association	500	
		$4,700
Rent		750
Boston Medical and Surgical Journal		16.500
Malpractice Defense		2,000
Shattuck Lecture		200
Cotting Lunches		400
		$26,950
Standing Committees:		
Of Arrangements for Annual Meeting	$2,500	
Scientific Papers	200	
Membership and Finance	25	
Ethics and Discipline	25	

*Note vote passed Feb. 7, 1923, after the receipt of this budget, increasing this sum.

Medical Education and Medical Diplomas (including expenses of delegate to annual congress at Chicago)	250	
State and National Legislation (including expenses of delegate to annual congress at Chicago)	500	
Public Health	700	
		4,200
Dividend to District Societies		4,000
		$35,150
Contingent Fund		150
		$35,300

DAVID N. BLAKELY, *Chairman.*

The item of appropriation for delegates was discussed by Dr. C. E. Mongan, who called attention to the vote of the Council of February 1, 1911, which limited the amount that might be reimbursed to any one delegate to the House of Delegates for his travelling and sleeping car expenses for attendance at any one convention, to one hundred dollars. At the present time such a sum would by no means cover the expense of a trip to San Francisco, the meeting place of the House of Delegates this year. He thought that more adequate provision should be made for the legitimate expenses of the delegates from the Massachusetts Medical Society. Dr. Blakely said that his committee had considered the matter but were powerless to make a recommendation in the face of the vote of the Council of 1911. The Secretary explained, at the request of the Chair, what had been the custom in the past concerning the payment of the expenses of the society's delegates to the annual congresses at Chicago, that is, their travelling expenses to and from Chicago, and their hotel bills, provided that they rendered itemized bills to the President for approval. Dr. S. B. Woodward said he could see no distinction between the services rendered by the delegates to the congresses and by those to the meetings of the House of Delegates, therefore, he moved, and after amendment by Dr. Merrill it was

Voted, That hereafter, in conformity with the practice already applying to the expense accounts of the delegates to the annual congresses on Medical Education, Medical Licensure, Public Health and Hospitals, of the American Medical Association, at Chicago, the delegates from the Massachusetts Medical Society to the House of Delegates of the American Medical Association shall be reimbursed from the treasury of the Massachusetts Medical Society, for their railway fares in travelling directly to and in returning directly from the meetings of the House of Delegates, and for their food and lodging while in transit and during the sessions of the House, provided,

1. That each delegate furnishes the President with an itemized bill of said expenses within one month of the last day of any such meeting, and provided,
2. That the President has approved such bill as reasonable and proper.

On being put to a vote the Budget for 1923, as modified by the above vote, was accepted and its recommendations adopted.

Dr. C. F. Painter, Chairman of the Standing Committee on Medical Education and Medical Diplomas, took the floor to explain the work his committee was doing and expected to do before the session of the Legislature of 1924, in attempts to improve the medical practice act of Massachusetts. He pointed out that under the existing law no members of the faculties of the medical schools, no teachers, could be appointed to the State Board of Registration in Medicine. His committee thought this a mistake; that active teachers are more in touch with what is going on in medical circles and therefore are in a better position to guide practice than other classes of practitioners; that able men are desired as members of the Board and that it is not rational to have the Board restricted, as at present; the Governor should be given a wider opportunity in his choice of appointees to the Board. The law reads: "No member of said board shall belong to the faculty of any medical college or university, and no more than three members thereof shall at one time be members of any one chartered medical society." Dr. Painter wished to have the intelligent opinion of the Society behind his committee in urging on the Legislature a change in the law regarding the Board of Registration in Medicine.

Dr. W. P. Bowers said: "I have had the pleasure and honor of being in conference with the Committee. So far as the present situation is concerned, it has been pretty well canvassed. Of course, any proposed legislation is a matter of diplomacy in dealing with the attitude of the Legislature and with the people who are interested in opposing any legislation that is put forward by the Medical Society. There is nothing particularly definite to be advocated at this time in the way of diplomacy, because, as Dr. Painter said, there is no prospect at the present moment of securing any progressive legislation. I may mention that in furtherance of the suggestion made by Dr. Painter the Minnesota Medical Society has just drafted a bill for a board of examiners for that State to be composed of men known to be medical educators, who shall examine the applicants for registration in the fundamentals of medicine without going into the features of treatment. It holds everybody who contemplates being licensed to take these same examinations and to come up to a definite standard. That is a move in one particular direction. If you will bear with me a moment—Dr. Painter has referred to my particular ideas which have been the result of a study of over twenty-seven years. I believe that the whole system of medical registration should be approached in a very different way. It seems to me the present system of examining the graduates of medical schools is faulty in that you deal only with the finished product of the school. It has seemed to me that the wiser course would be to deal with the medical schools first and have a board of registration capable of passing upon the work done in the medical school and to approve only the graduates of recognized medical schools. When such medical schools shall have satisfied the Board that the requirements have been attained, their graduates should be registered without the burden of an examination. That would give anybody coming to Massachusetts the opportunity of registering here without being subject to an examination. It is humiliating to some of the leaders in medicine to come to Massachusetts and have to take an examination. They should be licensed because of their standing and because they are graduates of reputable medical schools. The proposed plan would do away with the question of reciprocity. It is constitutional and would relieve the situation of bothersome matters pertaining to registration. This proposition perhaps is somewhat visionary, in that the people who are associated with and support low grade schools would inevitably oppose such measures. However, our Legislature has never shown any inclination to deal definitely with low grade schools. Theoretically, I think if the matter were dealt with in the way just sketched, we would have an ideal registration law." (Applause.)

The Chair: The Council has been reminded by the Secretary's abstract of business that there was a committee appointed to consider a meeting of Federated New England Medical Societies. Dr. Merrill will make a brief report of progress.

Dr. A. P. Merrill: The Committee has held a satisfactory meeting with committees appointed by the other State societies. The matter was informally discussed, and we all felt that it was necessary to formulate some definite statement to put before the other State societies. Of course, the thing is more or less in the air, and the next step is that a constitution and by-laws should be drawn up, and an outline made of the proposed meeting, all to be presented as a preliminary report before each State society. It will be published in the JOURNAL as soon as it is prepared, and we thus hope to have the Society act upon it at the June meeting. We felt that it was better to delay the formation of the meeting rather than to start half ready. We want to have the thing worked out before we make any definite move.

Dr. W. P. Bowers read a report of the Committee on Maternal and Infant Welfare, embodying a request that the report be accepted as final and the committee discharged. (See Appendix No. 3.) On motion, duly seconded, the report was accepted with the thanks of the Council for the work put into it, and the committee discharged. Dr. C. E. Mongan criticised the report as regards the classification of the diseases mentioned as causes of death and for the statement that a medical man could better take charge of the Bureau of Vital Statistics than the Secretary of State. He presented a minority report (See Appendix No. 4) on behalf of himself and Dr. Dutton, which, on his motion, was received and ordered printed in the record.

On motion by Dr. E. H. Bigelow it was voted to appoint a committee of five as representatives to a conference of health agencies to be held in Springfield, April 26, 27 and 28, 1923, the members to be selected by the Chair. In accordance with that vote the Chair appointed: E. H. Bigelow, Annie L. Hamilton, E. F. Cody, Victor Safford and R. I. Lee, the representatives having power to add to their number fellows of the Massachusetts Medical Society in the Springfield region.

Dr. C. E. Mongan made a motion that the President be empowered to appoint a committee of seven to consider the advisability of the Society holding at stated times and in certain parts of the State clinical meetings, surgical and medical, and to report to the Council. He thought that the plan might be to have members of the Society go to the larger cities and arrange for a meeting or clinic in the forenoon which might include visits to the hospitals and wards, a lunch at noon, and in the afternoon a discussion of the problems that had been presented in the morning. The motion having been duly seconded, was passed. The President subsequently appointed the following committee:

C. E. Mongan, Somerville.
G. P. Twitchell, Greenfield.
S. H. Ayer, Boston.
J. B. Thomes, Pittsfield.
W. G. Phippen, Salem.
C. J. Leary, New Bedford.
J. M. Birnie, Springfield.

Dr. S. H. Ayer said that it seemed to him that many fellows are interested in the subject of broadcasting. He thought it would be a good plan to have a committee appointed to look into the matter of broadcasting by radio the proceedings of meetings of the Society for the benefit of those who are unable to attend, and he made a motion to that effect. On the suggestion of the Chair he was willing to have the matter taken up by the Committee of Seven, just voted, to consider the question of holding clinclinical meetings throughout the State, and on that understanding no vote was taken on his motion.

Adjourned at 2.10 P. M.

WALTER L. BURRAGE, *Secretary.*

APPENDIX TO PROCEEDINGS OF THE COUNCIL.

APPENDIX NO. 1.

LETTER OF CERTIFIED PUBLIC ACCOUNTANT.

Boston, January 31, 1923.

DR. FRANKLIN G. BALCH, DR. RICHARD G. WADSWORTH, Auditing Committee, Massachusetts Medical Society, Boston, Mass.

***Gentlemen*:**

At the request of your Treasurer, Dr. Arthur K. Stone, I have audited the books and accounts of the Massachusetts Medical Society for the year ended December 31, 1922, and attach hereto:

Schedule A—Statement showing the Assets and Liabilities of the Massachusetts Medical Society, December 31, 1922.

Schedule B—Statement showing the Current Account of the Massachusetts Medical Society for the year ended December 31, 1922.

The cash on deposit in the banks have been reconciled with the bank statement and found to be correct. All known cash receipts have been properly accounted for, and disbursements are supported by cancelled checks.

The attached statement of Assets and Liabilities represents the true condition of the Society to the best of my knowledge and belief.

Respectfully submitted,

HORACE C. HARTSHORN,
Certified Public Accountant.

TREASURER'S REPORT.

SHOWING THE ASSETS AND LIABILITIES OF THE MASSACHUSETTS MEDICAL SOCIETY

DECEMBER 31, 1922.

ASSETS

Schedule A.		
***Cash*:**		
New England Trust Co.	$7,694.53	
Old Colony Trust Co.	4,167.57	$11,862.10
***Investments*:**		
Shattuck Fund		
Annuity Policy Mass. Hospital Life Ins. Co.	9,166.87	
Phillips Fund		
Massachusetts 3½% Gold Bonds	10,000.00	
Cotting Fund		
Deposit in Institution for Savings in Roxbury and Its Vicinity	1,000.00	
Deposit in Provident Institution for Savings in the Town of Boston	1,000.00	
Deposit in Suffolk Savings Bank for Seamen and Others, Boston	1,000.00	
***Permanent Funds*:**		
Deposit in Franklin Savings Bank, Boston	1,074.48	
Par Value		
$5,200.00 Liberty Bonds 4th Issue 4¼%	5,043.23	
$6,000.00 Massachusetts 3½% Gold Bonds	6,000.00	
$1,000.00 U. S. Steel Corp. 5s, 1963	1,009.00	
$2,000.00 U. S. Rubber 5s, 1947	1,735.50	
$2,000.00 American Sugar Refining Co. 6s, 1937	1,972.50	
$2,000.00 Great Northern Ry. Co. 5½s, 1952	1,932.50	
$2,000.00 Adirondack Power & Light Co. 6s, 1950	1,970.00	
$4,000.00 Public Service Co. No. Ill. 5s, 1956	3,640.00	
$3,000.00 Dayton Power & Light Co. 5s, 1941	2,797.50	
$3,000.00 Toledo Edison Co. 5s, 1947	2,805.00	
$3,000.00 Cedar Rapids Mfg. & Power Co. 5s, 1953	2,805.00	54,951.58
BOSTON MEDICAL AND SURGICAL JOURNAL		1.00
Total Assets		$66,814.68

LIABILITIES.

***Endowment Funds*:**		
Shattuck Fund (G. C. Shattuck, 1854, Balance, 1866)	$9,166.87	
Phillips Fund (Jonathan Phillips, 1860)	10,000.00	
Cotting Fund (B. E. Cotting, $1,000.00, 1876, 1881, 1887)	3,000.00	$22,166.87
***Surplus*:**		
Balance, January 1, 1922 (Adjusted) *Exhibit* 1	32,548.16	
Year ended December 31, 1922, *Schedule B*	12,099.65	44,647.81
Total		$66,814.68

SURPLUS ACCOUNT

DECEMBER 31, 1922

Schedule A, Exhibit 1:

CREDIT.

1922	
Jan. 1. Balance	$32,547.16
Dec. 31, BOSTON MEDICAL AND SURGICAL JOURNAL	1.00
Total	$32,548.16

STATEMENT SHOWING THE CURRENT ACCOUNT OF THE MASSACHUSETTS MEDICAL SOCIETY FOR THE YEAR ENDED DECEMBER 31, 1922.

Schedule B.

CREDIT.

Assessments paid to District Treasurers:			
Barnstable		$280.00	
Berkshire		750.00	
Bristol North		606 00	
Bristol South		1.420.00	
Essex North		1.096.00	
Essex South		1,978 00	
Franklin		380.00	
Hampden		2,035.00	
Hampshire		500.00	
Middlesex East		776.00	
Middlesex North		1.026.00	
Middlesex South		5,023.50	
Norfolk		4,572.00	
Norfolk South		602.00	
Plymouth		901.00	
Suffolk		7.114.00	
Worcester		2.880.00	
Worcester North		700.00	$33,239.50
Assessments paid to Treasurer		$2.880.00	
Less—Return of Overpaid Assessments		33.00	2.847.00
Total			$36.086.50
Income Shattuck Fund			$1,073.43
Income Phillips Fund			
Massachusetts 3½% Gold Bonds			350.00
Income Cotting Fund			
Interest—Institution for Savings in Roxbury and Its Vicinity		45.00	
Interest—Provident Institution for Savings in the Town of Boston		45.00	
Interest—Suffolk Savings Bank for Seamen and Others		45.00	135.00
Income Permanent Funds			
Interest—Franklin Savings Bank, Boston	$48.32		
Interest—Liberty Bonds 4¼%	221.00		
Interest—Massachusetts 3½% Bonds	210.00		
Interest—U. S. Rubber Bonds	31.11		
Interest—U. S. Steel Bonds	32 22		
Interest—American Sugar Bonds	37.00		
Interest—Great Northern Railway Bonds	33.92		
Interest—Adirondack Lt. & Power Bonds	57.00		
Interest—Cedar Rapids Mfg. & Power Bonds	43.75	714.32	
Less—Interest advanced on permanent funds purchased:			
Dayton Power & Light Co. Bonds	4.17		
Toledo & Edison Bonds	41.67		
Public Service Ill. Bonds	38.89	84.73	629.59
Income from deposits in Banks			
New England Trust Co.		493.32	
Old Colony Trust Co.		142.19	635.51
Total			$38,910.03

DEBIT.

General Expense		
President's Expense	$51.76	
Secretary's Expense	966.47	
Treasurer's Expense	358.66	
Librarian's Expense	3.00	
District Treasurers' Expense	1,918.87	
Supervisors' Expense	33.38	
Censors' Expense	348.75	
Rent	750.00	
Salaries	2,300.00	
Bank Charges	.10	
Delegates' Expense	493.67	7,224.66
BOSTON MEDICAL AND SURGICAL JOURNAL Expense		10.500.00
Shattuck Lecture		200.00
Committee Expense		
Arrangements	1,595.97	
Publications	5.00	
Membership and Finance	19.40	
State and National Legislation	270.05	
Public Health	508.52	

Maternal and Infants' Welfare	665.43		
Workmen's Compensation	11.75	3,076.12	
Annual Dividends to District Societies		4,000.00	
Defense of Malpractice Suits		1,403.29	
Board of Trial Expense		83.94	
Cotting Lunches		322.37	
Total Expenses			$26,810.38
Balance to Surplus			$12,099.65

Respectfully submitted,
Arthur K. Stone, *Treasurer*.

Reconciliation Between the Profit and Loss and Budget for the Year Ended December 31, 1922.

		Profit and Loss Account	Budget Estimate	Difference Under Estimated	Difference Over Estimated
Revenue:					
Assessments	$36,086.50				
Investments	2,823.53				
Total Society Revenue		$38,910.03	$35,000.00	$3,910.03	
Increase in Revenue Over Budget			3,910.03		
Total as per Auditor's Report		$38,910.03	$38,910.03		
Expenses:					
Salaries of Officers:					
Secretary		$1,400.00	$1,500.00		100.00
Treasurer		500.00	500.00		
Librarian and Librarian Emeritus		400.00	400.00		
Expenses of Officers:					
President		51.76	200.00		148.24
Secretary		966.47	900.00	66.47	
Treasurer		358.66	250.00	108.66	
District Treasurers		1,918.87	2,000.00		81.13
Censors		348.75	700.00		351.25
Delegates		493.67	500.00		6.33
Rent		750.00	750.00		
Journal		10,500.00	16,500.00		6,000.00
Defense of Malpractice Suits		1,403.29	800.00	603.29	
Shattuck Lecture		200.00	200.00		
Cotting Lunches		322.37	400.00		77.63
Standing Committees:					
Of Arrangements		1,595.97	2,500.00		904.03
Scientific Papers			200.00		200.00
Ethics and Discipline			25.00		25.00
Membership and Finance		19.40	25.00		5.60
Medical Education and Medical Diplomas			230.00		230.00
State and National Legislation		270.05	500.00		229.95
Public Health		508.52	700.00		191.48
Special Committees:					
Industrial Insurance		11.75	25.00		13.25
*Maternal and Infant Welfare		665.43	350.00	315.43	
Dividends to District Societies		4,000.00	4,000.00		
Contingent Fund:			845.00		
Librarian's Expense		3.00			
Supervisors' Expense		33.38			
Publications		5.00			
Board of Trial Expense		83.94			
Bank Charges		.10			719.58
Total Expenses as per Auditor's Report		$26,810.38		$1,093.85	$9,283.47
Total Budget			$35,000.00		
Expense over-estimated			8,189.62	8,189.62	
		$26,810.38	$26,810.38	$9,283.47	$9,283.47
Revenue under-estimated		$3,910.03			
Expenses over-estimated		8,189.62			
Total Gain Over Budget (carried to Surplus)		$12,099.65			

*$300.00 extra was appropriated by the Council at its October meeting, on recommendation of the Committee on Membership and Finance.

APPENDIX NO. 2.

STATEMENT OF THE ACCOUNTS OF THE BOSTON MEDICAL AND SURGICAL JOURNAL FOR 1922.

Boston, January 18, 1923.

Boston Medical and Surgical Journal,
126 Massachusetts Avenue, Boston, Mass.

Gentlemen:

In accordance with your instructions I have audited the books of the BOSTON MEDICAL AND SURGICAL JOURNAL for the twelve months ended December 31, 1922, and attach hereto:

Schedule A—Statement showing the Assets and Liabilities of the BOSTON MEDICAL AND SURGICAL JOURNAL, December 31, 1922.

Schedule B—Statement showing the Profit and Loss Account of the BOSTON MEDICAL AND SURGICAL JOURNAL for the twelve months ended December 31, 1922.

CASH.

All cash receipts and disbursements have been verified. The bank account has been reconciled and found to be in agreement with the books.

ACCOUNTS RECEIVABLE.

The separate items shown under this heading represent the amount due from customers on account of advertising, reprints, miscellaneous sales, engraving and classified advertising.

DOUBTFUL ACCOUNTS.

This account represents accounts of doubtful value which have been turned over to a collection agency.

JOURNALS ON HAND.

The inventory of old Journals on hand amounting to $157.79 represents the same value used on the report of December 31, 1921. This amount was furnished by you and has been accepted without verification.

LIBERTY BONDS.

The Liberty bonds in the custody of the State Street Trust Company, amounting to $1,000, were examined.

ACCOUNTS PAYABLE.

A separate exhibit is submitted showing the detail of the amounts owed by the JOURNAL on December 31, 1922.

PROFIT AND LOSS ACCOUNT.

The operations of the JOURNAL for the year ended December 31, 1922, have resulted in a net loss of $10,948.11. During the year the Massachusetts Medical Society contributed $10,500.00 toward the support of the JOURNAL. After adding this contribution to the balance of the Surplus account as of January 1. 1922, and deducting the loss for the twelve months ended December 31, 1922, there remains a balance of $5,085.59, which is $448.11 less than the balance at the beginning of the year.

Respectfully submitted,
HORACE C. HARTSHORN,
Certified Public Accountant.

STATEMENT SHOWING THE ASSETS AND LIABILITIES OF THE BOSTON MEDICAL AND SURGICAL JOURNAL DECEMBER 31, 1922.

Schedule A.

ASSETS.

Working Assets:			
Cash:			
State St. Trust Co.	$2,542.31		
Petty Cash	1.89	$2,544.20	
Accounts Receivable:			
Advertising	3,015.68		
Reprints	550.40		
Miscellaneous Sales	38.78		
Engraving	21.16		
Classified Advertising	3.70	3,629.72	
Doubtful Accounts (suspense)		37.70	
Notes Receivable (*Exhibit* 1)		115.57	
JOURNALS on Hand (Back Numbers)		157.79	
Total Working Assets.			6,484.98
Capital Assets:			
Office Furniture		700.00	
Investments:			
Liberty Bonds		1,000.00	
Total Capital Assets			1,700.00
Total			$8,184.98

LIABILITIES.

Working Liabilities:		
Accounts Payable (*Exhibit* 2).	$3,099.39	
Total Working Liabilities		$3,099.39
Capital Liabilities:		
Surplus:		
Balance January 1, 1922	$5,533.70	
Amount Contributed by Massachusetts Medical Society from January 1, 1922 to December 31, 1922	10,500.00	
Total	$16,033.70	
Less—Net Loss from Operations for the year ended December 31, 1922 (*Schedule B*)	10,948.11	
Balance December 31, 1922		5,085.59
Total		$8,184.98

NOTES RECEIVABLE DECEMBER 31, 1922.

Schedule A, Exhibit 1:

Dr. Millet	$25.00
Fiske & Arnold	90.57
Total	$115.57

ACCOUNTS PAYABLE DECEMBER 31, 1922.

Schedule A, Exhibit 2:

Farragut Building Trust	$54.17
Jamaica Printing Company	3,036.06
New England Tel. & Tel. Co.	9.16
Total	$3,099.39

STATEMENT SHOWING THE PROFIT AND LOSS ACCOUNT OF THE BOSTON MEDICAL AND SURGICAL JOURNAL FOR THE YEAR ENDED DECEMBER 31, 1922.

Schedule B.

REVENUE.

Advertising	$17,529.54

Reprints	4.852.08
Subscriptions	3 629 59
Interest and Discount	1,587.97
Classified Advertising	568.20
Miscellaneous Sales	539.84
Engraving	224.74
Contributions	3.00
Total Revenue	$28,934.96

EXPENSE.

Cost of JOURNAL:		
Labor	$15.168.41	
Stock	6 070 40	
Reprints	6.250.36	
Engraving	1,544.77	
Postage	869 35	
Directory	668.20	
Index	565.72	
Transportation	156.00	31.293 21
Salary of Editors		1,875.00
Editorial Expense		507.13
Office Salaries		2,675.70
Office Expense		809 98
Advertising Commission		1,320.24
Subscription Commission		101.17
Discount Allowances		291.89
Collection Fees		143 94
Rent		650.04
Telephone		98.49
Light		30 05
Insurance		18.00
Loss from Bad Accounts		58.25
General Expense		10.00
Total Expense		$39.883.07
Net Loss		$10,948.11

REPORT OF AUDITING COMMITTEE.

To the President and Councilors:

We have examined the securities of the Society in the custody of the Treasurer in the vaults of the Bay State Branch of the Old Colony Trust Company; we find them in accordance with the Treasurer's schedule of investments.

The report of audit of the Treasurer's accounts by Horace C. Hartshorn, Certified Public Accountant, for the year ending Dec. 31, 1922, we have also examined and accepted, and submit it herewith as a part of our report.

In like manner we have examined and accepted the report of the audit of the accounts of the BOSTON MEDICAL AND SURGICAL JOURNAL, as presented to the Treasurer by the Committee having charge of the affairs of the Journal, and herewith submit it as part of our report.

RICHARD G. WADSWORTH,
FRANKLIN G. BALCH,
Auditors of the Massachusetts Medical Society.
February 2, 1923.

APPENDIX NO. 3.

REPORT OF COMMITTEE ON MATERNAL AND INFANT WELFARE.

The Committee was appointed by vote of the Council on February 2, 1921, "for the purpose of studying any measures for maternal and infant welfare, and to take such action and make such recommendations to the district societies, to the Council and in the columns of the BOSTON MEDICAL AND SURGICAL JOURNAL as may from time to time be approved." Later it added to its membership two representatives of the Massachusetts Homeopathic Medical Society.

It was soon found that without adequate data no independent conclusions could be drawn which were based upon ascertained facts. Therefore an appropriation was obtained, and a study has been made of all the deaths in the puerperal state which occurred in Massachusetts in 1921. A circular letter and questionnaire were sent to every physician who signed a death certificate in these cases. The Committee takes this occasion to thank those physicians who went to considerable trouble to aid the Committee. With rare exceptions, their co-operation was splendid.

A few questionnaires were sent out regarding deaths in 1922, but when the Committee found that the State Department of Public Health was undertaking a detailed study along identical lines for the year 1922, the Committee felt it had better not duplicate this work. Furthermore, the newly established Section of Obstetrics and Gynecology may well take up any studies which this Committee have undertaken.

Your Committee therefore presents this as a final report, and asks that it be discharged.

We confine ourselves solely to a study of the deaths in the puerperal state in the year 1921. We must point out that many deaths in the puerperal state, often spoken of as maternal deaths, have nothing whatever to do with obstetrics.

Five hundred and ninety-one deaths were reported in 1921, occurring in 105 cities and towns. At least 20 of these may be withdrawn at once because they are in no way obstetrical, or even have to do with pregnancy. Thirty-one deaths occurred following abortion, either self induced or occurring under suspicious circumstances. Fifteen deaths occurred as the result of extra-uterine pregnancy. It seems reasonable, therefore, that 66 of these deaths should be withdrawn at once from any consideration having to do with obstetrical care. Possibly a few others should be similarly withdrawn.

There are left for consideration 525 deaths of mothers among 92.207 live births and 3428 stillbirths. Therefore there has been one death of a mother to each 182 births from causes due more or less to the pregnancy and puerperium, and excluding those cases of extra-uterine pregnancy which are surgical rather than obstetrical emergencies, and those cases of abortions which, under present social and ethical conditions, cannot be prevented by the obstetrician.

We have classified the deaths exactly as they were reported, making changes only as requested by the physicians signing the certificates, and comment upon the causes as reported in the various groups.

Caesarean Section—In the Vital Statistics at the State House there are recorded 35 deaths of patients upon whom Caesarean section had been performed. Your Committee found 51 additional cases, and one case of ruptured scar which died before operation could be performed. Thus in 1921 there were 86 deaths in association with Caesarean section in addition to one withdrawn as not obstetrical. Your Committee has no knowledge of the number of Caesarean sections performed throughout the State, and can therefore give no estimate of the percentage of deaths involved in the operation. It is interesting to note, however, that the percentage of Caesarean sections to all births varies in different hospitals from three-tenths of 1 per cent. to 18 per cent.

Your Committee has grouped the causes of the 87 deaths as reported in association with Caesarean section. The variety of causes assigned is very striking:

3	Rupture of scar of previous operation (one died before operation).
15	Eclampsia.
4	Pneumonia.
4	Placenta Praevia.
6	Cardiac.
1	Cardio-renal.
9	Embolus.

1 Cerebral haemorrhage (autopsy).
2 Post partum haemorrhage.
4 Shock.
18 Sepsis (so reported).
3 Peritonitis (so reported).
8 Ileus, either paralytic or mechanical (3 of these occurred in one hospital within a period of three weeks).
1 Vaso-motor paralysis.
2 Mesenteric thrombosis.
1 Intestinal paralysis.
3 Acute dilatation of stomach.
2 Acute acidosis.

About half of these deaths are reported as infections or are reported as due to conditions which are common accompaniments or symptoms of septic peritonitis. Some of the causes of death assigned are most difficult to diagnose, even if not complicated by operative procedures.

In view of these facts your Committee would refer to the reports of Polak, Williams and other obstetricians, regarding the indications and contraindications for Caesarean section, and regarding the inevitable risks of peritonitis incident to this, as compared with ordinary abdominal operations. The relative infrequency of Caesarean section in their clinics is very striking. Your Committee wishes to point out that in certain hospitals rules have already been established requiring adequate consultation before any Caesarean Section may be performed. This seems justified in view of the fact that about one-sixth of the obstetrical deaths were in association with Caesarean section and that sepsis must properly be considered the cause of death in about half of these cases, rather than the condition for the relief of which the operation was undertaken.

Toxaemias and Eclampsia—The toxaemias of Pregnancy and Eclampsia account for 85 deaths, in addition to the 15 classified under Caesarean Section. The Committee has found it impossible to state in how many of these cases there was adequate prenatal care. In some instances there were only one or two prenatal visits. It is noteworthy that in the last five years in a large hospital in Massachusetts there have been but two deaths from eclampsia, where the patients received prenatal care, in 8901 obstetric cases.

Public education on the necessity of prenatal care should eliminate a very large proportion of the deaths from toxaemia and eclampsia, which now make up over a sixth of the total obstetric deaths.

Pernicious vomiting accounted for 12 deaths. Some of these were not curetted; in others the uterus was emptied.

Eighteen deaths were due to nephritis.

Thus possibly 30 more cases may be added to this group, making 114 in all, or over a fifth of the deaths.

Haemorrhages—The haemorrhages account for 60 deaths; 32 were due to placenta praevia, 9 to accidental or ante partum haemorrhage, and 19 to post partum haemorrhage, in addition to the two classified under Caesarean Section.

Septicaemia—Sepsis accounts for 101 deaths, in addition to those so classified under Caesarean Section. Beside those 101 there are 5 due to peritonitis and 4 to post partum salpingitis. Thus 110, or over one-fifth of the obstetric deaths, are due to sepsis.

Forty-six deaths are classified as due to embolus, some specified as pulmonary or cerebral. The influence of operative trauma cannot be ignored in many of these cases.

It has not been possible to determine how many deaths have occurred where midwives called in physicians when affairs had become desperate.

The Committee present the facts which they have learned and have made such comments as seem justified by the facts. We wish further to point out that it is extremely misleading to have all deaths in the puerperal state roughly grouped as maternal deaths, when many are not attributable in any way to the pregnancy. While recognizing the admirable work and the spirit of co-operation of the present Registrar of Vital Statistics, we feel that these matters should be in the hands of a person with adequate medical training.

We feel that no adequate data regarding the morbidity resulting from childbirth can ever be obtained until puerperal septicaemia is made a reportable disease.

We would again emphasize these facts regarding conditions in Massachusetts in 1921.

First—About one-sixth of all puerperal deaths were associated with Caesarean section, one-half of which were due to sepsis.

Second—About one-fifth of all puerperal deaths were due to toxaemia of pregnancy and eclampsia—conditions which have been practically eliminated as a cause of death where adequate prenatal care is given.

Third—About one-fifth of all puerperal deaths were due to septicaemia. It is not too much to expect a diminution in the death rate from this cause.

Fourth—The deaths from the causes just enumerated are about half of all the puerperal deaths. These deaths seem to be in part at least preventable in the light of modern knowledge.

Appended to this report is a Table of the Causes of Death.

Walter P. Bowers, *Chairman.*
Robert L. DeNormandie.
Brace W. Paddock.
Thomas Almy,
O. R. Chadwell,
E. P. Ruggles,
James S. Stone, *Secretary.*

TABLE OF CAUSES OF DEATH.

20	Obviously non-obstetric.
31	Abortions.
15	Extra-uterine pregnancies.
86	Caesarean sections.
101	Sepsis (so reported).
4	Salpingitis.
5	Peritonitis.
2	Erysipelas.
85	Toxaemia of pregnancy and Eclampsia.
12	Pernicious vomiting.
18	Nephritis.
60	Haemorrhage.
1	Shock.
1	Following transfusion.
33	Cardiac.
46	Embolism.
1	Phlebitis.
3	Cardio-renal.
1	Anaemia.
17	Pneumonia.
1	Congestion of lungs.
2	Influenza.
10	Dystocia.
1	Inversion of the uterus.
2	Ruptured uterus.
1	Sudden death in forceps delivery.
1	Hydatid mole.
14	Miscarriages.
8	Attended by midwives.
3	Puerperal insanity.
2	Found dead in bed.
2	Intestinal obstruction.
1	Malaria.
1	Pyelitis.

APPENDIX NO. 4.

MINORITY REPORT OF COMMITTEE ON MATERNAL AND INFANT WELFARE.

With two exceptions, the undersigned concur in general with the majority report of the Committee on Maternal and Infant Welfare.

First—Technically, perhaps, there are no data on which to state whether or not maternal mortality is increasing or decreasing. We do know, however, as stated in the report of this Committee to the Council, October 3, 1921, that the statistics for a period of years are wholly unreliable for comparative purposes. No general factor has been presented to the Committee to account for increase in mortality, while many factors have been presented which should have markedly decreased the mortality. We therefore feel it is wholly unjust to the medical profession to tolerate official statements that there has been a 70% or other large increase in maternal mortality in Massachusetts in the past 20 years.

Second—No serious or detailed study has been made by the Committee concerning the State Department of Vital Statistics, and we therefore feel incompetent to make recommendations concerning its administration.

(Signed) RICHARD DUTTON.
CHAS. E. MONGAN.

February 7, 1923.

Current Literature Department.

ABSTRACTORS.

GERARDO M. BALBONI
WM. B. BREED
LAURENCE D. CHAPIN
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WILDER TILESTON
BRYANT D. WETHERELL

THE RELATION OF SYPHILIS TO DIAGNOSIS AND SURGERY.

CRANCE (*New York State Jour. of Med.*, Vol. 22, No. 8, Aug., 1922) states there are three important factors in the diagnosis of syphilis: a carefully taken history, the physical findings, and the blood, spinal fluid, Wassermann or both. The Wassermann test is taken by the author to include provocative tests also. In the physical examination the physician should watch for the following conditions: areas of alopecia; a slight external strabismus; ptosis of the upper lid; the reaction of the pupils to light; whitish contracted areas in the throat or scars of previous mucous patches; the teeth, especially in congenital syphilis. In the chest, if a heart lesion is found, the blood pressure on either side should be compared. A variation of 20 mm. or more of mercury, in the two arms, is suggestive of aortic aneurysm. The roentgenologist's findings can verify such a condition. The abdominal examination reveals little except the enlargement of the liver, which is often due to syphilis. If the patellar reflexes are at all diminished or absent, they should be studied further. The skin should be observed for lesions or scars. A very obscure yet important sign is the enlargement of the epitrochlear glands. Roughening of the tibia, although suggestive, is present in so many normal individuals that it seems better to disregard it.

Many cases of obscure syphilis present no external signs. All chronic cases presenting abdominal symptoms such as those referable to the stomach, duodenum, gall-bladder, appendix, etc., should be thoroughly studied and Wassermann tests taken before medical or surgical treatment is suggested. It has been demonstrated after autopsy that the spirocheta pallida is present in such tissues as the heart muscle, the aorta, the liver, and in certain ulcers of the stomach.

The author cites six illustrative cases of obscure syphilis.

HUMAN BLADDER MUSCLE UNDER INCREASED TENSION.

BALDWIN (*Jour. of Urol.*, June, 1922) states that by increasing pressure on the bladder of a dog the smooth muscle of the bladder can be transformed into cross striated muscle, developing rhythmical contraction which could be made to stimulate the contraction of cardiac muscle. Three cases cited of two children, 2 months and 15 months, respectively, death due to obstruction of definite duration. There was no evidence of striated muscle in these bladders. The smooth muscle in the human bladder does not become striated when subjected to prolonged increase in tension. [B. D. W.]

THE HOMOLOGUE OF THE PROSTATE IN THE FEMALE.

JOHNSON (*Jour. of Urol.*, July, 1922) says that the urethra of the female corresponds only with that portion of the prostatic urethra of the male which lies between the internal orifice and the orifice of the prostatic utricle. The remainder of the male urethra is represented in the female by the vestibule. The whole homologue of the prostate in the female consists of: the urethral glands which are the homologues of those prostatic glands in the male that lie above the orifice of the prostatic utricle; Skene's ducts which are the homologues of the prostatic glands which lie below the orifice of the prostatic utricle; Bartholin's and Cowper's glands are true homologues. It is also demonstrated for the first time that the glands of the Littre are represented in the female by a few poorly developed glands which have received the name "minor vestibular glands."

[B. D. W.]

THE CLINICAL VALUE OF MERCUROPHEN IN THE TREATMENT OF GONOCOCCAL URETHRITIS.

SHIVERS (*Jour. of Urol.*, July, 1922) states:

1. Mercurophen has yielded uniformly good results in the treatment of gonococcal urethritis, and particularly in acute infections.
2. All cases with the exception of three showed a considerable decrease in the number of infected cells per field after the first and second treatments.
3. The solutions of mercurophen employed in this study were 1:4000 to 1:10,000; these produced slight or no irritation of the urethra.
4. All treatments with mercurophen should be preceded by thoroughly cleansing the parts to be treated with a warm 1:9000 solution of potassium permanganate. Further details of the method of treatment are given in the text. [B. D. W.]

ANOMALOUS RELATIONSHIP OF THE RIGHT URETER TO THE INFERIOR VENA CAVA.

GRAVES AND DAVIDOFF (*Jour. of Urol.*, July, 1922) say that because of an anomalous development of the venous system, the right ureter, in rare instances, crosses the inferior vena cava posteriorly. The condition is sometimes productive of hydronephrosis.

[B. D. W.]

THE BOSTON
Medical and Surgical Journal

Established in 1828

Published by The Massachusetts Medical Society under the jurisdiction of the following-named committee:

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Roger I. Lee, M.D.
Robert B. Osgood, M.D.
For two years James S. Stone, M.D.
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The Journal does not hold itself responsible for statements made by any contributor.

Communications should be addressed to The Boston Medical and Surgical Journal, 126 Massachusetts Ave., Boston, Mass.

"CHILD WELFARE."

The importance of child welfare in its various branches is coming more and more into prominence, and justly so. As a general measure it is being widely discussed and advocated; practitioners are constantly being urged to pay greater attention to it; baby hygiene associations are becoming popularized, and are doing excellent work; nutrition clinics are being established, and school oversight is conscientious and efficient. In addition to these the value of legislation in regulating child labor must be emphasized.

A general, far-reaching child welfare program resolves itself into six main divisions for care and study. The first fundamental consideration, fundamental because it seeks a proper start in life for the infant, unhandicapped save for the normal, legitimate handicap of infancy, deals with prenatal care—prolonging pregnancy to its normal conclusion—treating where possible and preventing where possible the diseases and other conditions which may precipitate a premature labor. High class obstetrics for the well to do and pregnancy clinics for the poor are solving this problem for certain groups of patients, but many are still without its benefits.

Skilful obstetrics, bringing the infant into the world under proper conditions for its existence, and providing it with its immediate necessary care is a second, but not a secondary consideration.

In those cases where premature delivery is unavoidable, the care of the prematurely born infant constitutes a problem in itself, and forms the third division of our thesis. There are three main principles that must be observed if these infants are to be given their maximum opportunity to live and thrive. These are: maintenance of body heat, individual attention and protection from infection, and breast milk for a food.

Infants born even at full term have the most precarious year of their lives ahead of them. Proper feeding, proper care, and protection from infection must be provided for them if they are to be given their right to survival. By proper attention to these first four divisions of our program, our high infant mortality can be reduced.

One of the most dangerous ambushes that besets the child's passage perilous is laid by the band of infectious diseases that seek to exterminate him. The death roll from tuberculosis is high, but can largely be reduced by the use of sterilized milk and protection from dangerous human contacts. The menace of diphtheria will vanish before organized immunization with toxin-antitoxin. Vaccination protects him from smallpox. Enteral infections, infectious diarrhoea, or summer diarrhoea is disappearing as the importance of a sterile food supply becomes recognized. The respiratory infections still exact their toll, but are lessened under proper hygienic conditions, and may yet be controlled. The rheumatic group of infections, with its sequelae of miserable lives and lingering deaths, is a disheartening problem, and its prevention is seen but dimly. Tonsillectomy in indicated cases has perhaps served to avert it, but the indications should be plain. The intensive studies that are being made on this subject will soon, we hope, bear fruit.

The sixth division of our program must consider the general well-being of the child; his teeth, orthopedic care, nutrition and hygiene. With our children, of all classes of society, it is our duty to give the care which they cannot give themselves.

◆

LEGISLATIVE HEARINGS.

The annual contest over the vaccination and antivaccination bills occurred on Thursday, February 8, in the auditorium at the State House. Several hundred people were present, the very great majority representing the opposition to vaccination and about twenty-five physicians in favor.

Dr. S. B. Woodward conducted the hearing in favor of the extension of compulsory vaccination to the scholars in private schools. His presentation of the subject was logical and masterly. He had the support of practically all prominent educators in the State, eleven Chambers of Commerce, four large insurance companies, Cardinal O'Connell, the Catholic bishops of Fall River and Springfield, and two hundred and seventy Boards of Health.

Dr. Kelley, Commissioner of Health, after stating his attitude in favor of the extension of vaccination requirements, introduced Dr. Benjamin White, who is in charge of the biological laboratories of the State Department of Health, who gave a very interesting account of the methods employed in the production of vaccine and other products, showing that practically all extraneous organisms are eliminated, and explained the necessity for the greatest possible care in the employment of aseptic methods, because all makers of such products have to meet the requirements of the Federal Government. He explained in detail the faulty deductions made by the opponents of vaccination, and showed that many of the arguments were based on false premises and illogical reasoning. Both his arguments and those of Dr. Woodward will appear later in this JOURNAL, hence further reference is unnecessary at this time.

Dr. Bartol, President of the Massachusetts Medical Society, explained the great liability of the spread of smallpox in communities not protected by vaccination, and made his arguments clear by drawing attention to known facts in agriculture relating to the vigorous growth of vegetables in virgin soil. He refuted the oft-repeated assertions that physicians have a commercial interest in carrying on vaccination, and made it clear that the medical profession is working in the interest of the people, and is striving to protect children from this dangerous disease.

Representatives of insurance companies argued that the burdens of smallpox react on the policy holders, and Dr. Prior of the Malden Board of Health testified to the protective power of vaccination.

Counsel for the Medical Liberty League opened the arguments for the antivaccinationists. There were no new arguments presented, but Dr. Padelford took occasion to speak rather disrespectfully of the endorsement of Dr. Woodward's bill by Cardinal O'Connell and others.

Every point made by the antis was enthusiastically applauded, especially when a member of the House of Representatives asserted that the parents of children should decide this matter, and if they did not want this objectionable matter applied to their children, theirs should be the deciding factor. Such people seem to be always willing to sacrifice children. Several members of the legislature report having received hundreds of letters favoring the attitude of the Medical Liberty League.

One wonders whether the legislature will ever be convinced that the teachings of science are more valuable and safer to follow than the unsound objections of hysterical unbelievers. It must be recognized that members of the legislature are in a delicate position, however, because it is evident that a large number of voters are opposed to compulsory vaccination. It also seems to be evident that the opposition is growing weaker from year to year. One reason for the inability of our committees to secure progressive legislation lies in the lack of co-operation on the part of the medical profession, for if every physician who believes in vaccination would carefully explain the actual facts to the members of the legislature, there would be a better appreciation of the necessity of the more general use of this great protective treatment.

A SEVERE CRITICISM.

SENATOR MOSES of New Hampshire is reported to have said that, "The Burbanks of politics have grafted strange stalks on the body of our statutes and have created a hybrid without pride of ancestry or hope of posterity. This used to be the land of the free. Now it is the region of the regulated. As it is now, the influence of the government is prenatal through the maternity bill and postmortem through the inheritance act. It controls us before we are born and after we are dead."

There is much logic and common sense in this terse criticism of the tendencies of legislative bodies, but however much we may deplore over-regulation, the spirit of chivalry which extends protection to those unable to care for themselves may properly find a field of action in giving to the child the right to be well born. We may not believe in the maternity bill, but society has a definite responsibility toward promoting the best possible physical development of the child. We very generally believe in preventive medicine, so far as the menace of the communicable and industrial diseases are concerned, but do we pay sufficient attention to the rights of the unborn?

The state is concerned in the value of each individual life as a possible asset or more definitely as a liability. Until the responsibilities of reproduction are more generally accepted, there are great opportunities for the education of prospective parents. With all due consideration for the reluctance of some to have the general principles of heredity taught, there should be established some common agreement of the extent of this form of instruction, and the method of its application.

It may be that in time the state will require evidence of more definite understanding of the responsibilities of marriage, and health organizations will unite with the clergy in formulating an acceptable scheme for the education of the people.

Some of the objectionable features of control, as suggested by Senator Moses, may be eliminated, and in place thereof sane and abundant education provided which will not be objectionable, for the child should have the right to a normal mental and physical heritage.

◆

MESCAL BUTTON.

The Hayden Bill, House of Representatives No. 2890, purposes to prohibit the use of the "mescal button" among the Indians and white people of the southwest. Is such a bill necessary? Authentic information concerning the effect of this drug on the nervous system, and its importance as a habit former has been lacking up to and within a few years.

In 1896 Weir Mitchell administered to himself a moderately large dose of mescal extract, and reported some of his reactions—which were similar to those experienced in a carefully reported case of migraine with color visions—even to unilateral frontal headache and gastric disturbances!

1—A common delusion is to see about twenty feet distant a trellis of silver covered with vines and flowers of brilliant tints and colors.

3—Quite commonly he sees multiple red candles intertwined and in rapid rotation, and once a red eye which seemed to approach him from a distance. Sometimes there is a milky cascade before both eyes.

6—He has several times, and first on awakening, seen the door open and a procession of white-robed, veiled figures enter. They did not fade until he arose and lit the gas. These ~~were seen~~ with his eyes open or shut, and he could not double them by causing himself to squint by pressure on one eye. (*British Medical Journal*, 1896, 11, 1625.)

In addition to the visual phenomena, mescal intoxication produces a sense of languid ease, the subject being for many hours in "the land where it is always afternoon," and feeling far superior to any of his fellow creatures.

Dr. Mitchell predicted "a perilous reign of the mescal habit when this drug becomes attainable."

On the other hand, we have the opinion of W. E. Stafford, of the Bureau of Plant Industry, United States Department of Agriculture, written as late as October, 1921. (*J. A. M. A.*, 77, 1278.)

"Various accounts of the effects of peyote, or 'mescal button' have been published. In some the drug is said to produce beautiful color visions, in others no sensation is recorded. From the testimony of the Indians, the effects seem to be of an hypnotic character.

"Peyote is never used habitually by the Indians, but is now used, as it was four centuries ago in old Mexico, in certain ceremonies. It causes hallucinations, but its effect is quieting, and there is no tendency to commit acts of violence in those who partake of it. *The greatest harm* caused by peyote is in its use as a *medicinal remedy* by the Indians, who regard it as a sacred plant possessing magic, curative properties. By the unwise administration of it to little children, and to invalids, it has, in all probability, been harmful, and even fatal."

The effects of "mescal button" are indeed fanciful and colorful, but is the question of its use as a habit-forming drug a real problem? More evidence of its danger must be produced, before we can give our support to the passage of the Hayden Bill.

◆

MASSACHUSETTS RECOGNIZES THE NATIONAL BOARD OF MEDICAL EXAMINERS.

On February 9 Governor Cox signed an Act which will permit the Massachusetts Board of Registration in Medicine to accept the certificate of the National Board of Medical Examiners "in place of and as equivalent to its own professional examination" in determining the qualifications of a candidate for registration. The Act amends Chapter 112 of the General Laws of the Commonwealth, which has required the Board of Registration to give its own examination to each candidate for registration in medicine.

The Board of Registration, although knowing the comprehensive and rigorous character of the ~~examination given~~ by the National Board, was therefore unable legally to recognize the certificate, although it felt that any further test of the candidate's qualifications to practice medicine was unnecessary. This amendment will become effective May 9—90 days after the Governor's signature. The petition which led to the passage of this Act was presented by Dr. Horace D. Arnold, who is a member of the National Board of Medical Examiners and its local representative.

It is to be noted that this Act is permissive and not mandatory, but it may reasonably be expected that the Board of Registration will vote to recognize the certificate after this change in the law becomes effective, since the Board was consulted beforehand and the presentation of the petition had its official approval. The wording is "the board may at its discretion accept the certificate." This leaves it within the power of the Board of Registration to withdraw recognition of the certificate at any time if, in its judgment, this action were advisable; it is possible that sometime the standard of the National Board might be lowered, or through some change it might not cover the legal requirements of the Massachusetts examination. This amendment does not change any of the other requirements of the registration law, and candidates holding the certificates must meet all these requirements, including the payment of the usual fee of $25.

The Massachusetts Board of Registration has adopted the plan of a practical and clinical examination of candidates, in addition to the written examinations. The final examination (Part III) of the National Board is a practical and clinical examination lasting four days, and is more severe and searching than that given by the State Board. It is believed that the new plan will be especially helpful to the State Board because by lessening the numbers that it must examine, its practical and clinical examination can be made more satisfactory. There is no danger that the Massachusetts Board of Registration will lack candidates through recognition of the certificate, because the educational requirements of the National Board are so much higher than the legal requirements of the Massachusetts law. The National Board requires graduation from a Class A medical school and one year of internship in an approved hospital; and for preliminary education a standard four-year high school course and two years of acceptable college work, including physics, chemistry, biology and a modern language. Those who, though eligible, do not take or who fail to pass the examinations of the National Board and those who cannot meet its requirements but do meet the legal requirements of Massachusetts will still furnish plenty of candidates for the examination of the Massachusetts Board.

It is not quite seven years since the National Board gave its first examination, and the progress made in securing recognition of its certificate is most gratifying. It has been officially recognized by the boards of registration in 23 states, and recognition in three other states, where the boards have power, is expected soon. In several other states the certificate has been recognized in individual cases, although general official recognition of the certificate has not been voted. In four other states besides Massachusetts the present legislatures have been asked to give their state boards the necessary authority—a change in the law being necessary—and favorable action is expected.

In addition to the recognition by state boards the certificate is accepted as equivalent to the required professional examination by the United States Army, Navy, and Public Health Service, by the American College of Surgeons, and by the Mayo Foundation. Reciprocal relations have been established with the Conjoint Examining Board of England and the Triple Qualification Board of Scotland, by which the holders of the certificate of the National Board are admitted to the final examination given by those bodies, and the holders of their certificates are admitted to the final practical examination of the National Board.

Following is a copy of this Act:

AN ACT

Relative to the Qualifications of Applicants for Registration as Qualified Physicians.

Be it enacted by the Senate and House of Representatives in General Court assembled, and by the authority of the same, as follows:

Chapter 112 of the General Laws is hereby amended by inserting after Section 2 the following new section:—*Section 2A.* In determining the qualifications necessary for registration as a qualified physician, the board may at its discretion accept the certificate of the National Board of Medical Examiners of the United States, chartered under the laws of the District of Columbia, in place of and as equivalent to its own professional examination; but before registration in pursuance of this section the applicant therefor shall pay a fee of $25.

NEWS ITEMS.

Weekly Death Rate in Boston.—During the week ending Feb. 17, 1923, the number of deaths reported was 335 against 245 last year, with a rate of 22.67 against 16.73 last year. There were 52 deaths under one year of age, against 36 last year. The number of cases of principal reportable diseases were: Diphtheria, 62; scarlet fever, 85; measles, 142; whooping cough, 73; typhoid fever, 2; tuberculosis, 27. Included in the above were the following cases of non-residents: Diphtheria, 7; scarlet fever, 13; whooping cough, 1; typhoid fever, 1; tuberculosis, 3. Total deaths from these diseases were: Diphtheria, 2; scarlet fever, 2; measles, 4; whooping cough, 11; tuberculosis, 13. Included in the above were the following non-residents: Scarlet fever, 1; whooping cough, 1.

Attendance at the Annual Meeting of the A. M. A.—The National Tuberculosis Association is making plans for a special party composed of representatives from New York, Chicago, and other centers. Any person interested in joining this party should communicate with the National Tuberculosis Association.

Beverly Hospital.—The monthly demonstration clinical meeting was omitted for February.

Professor Hunt Will Visit China.—Professor Reid Hunt of the Harvard Medical School is about to go to China to act as visiting Professor at the Peking-Union Medical College. Dr.

Hunt will be away until the end of next September.

Section of Medicine N. Y. Academy of Medicine.—In the list of speakers for the meeting February 20, 1923, Dr. Edwin A. Locke's name appears as the reader of a paper under the title of "Results with the Use of Type 1 Autopneumococcus Serum."

Boston Association of Cardiac Clinics.—A meeting of the Association will be held Thursday, March 15, 1923, 8 p.m. at the Boston City Hospital. (1) The Heart of Hypertension, by Dr. James P. O'Hare; (2) the Heart of Arteriosclerosis, by Dr. George P. Denny. All physicians, nurses, social workers and medical students cordially invited.

Miscellany.

NUTRITION WORK IN HONOLULU.

From December 6th to 20th, a Nutrition Institute was held in Honolulu by Dr. Wm. R. P. Emerson, under the auspices of the Social Service Bureau. Among the organizations especially interested in the undertaking were representatives of as wide a range as the Territorial Board of Health and Department of Public Instruction, the Medical Society of Hawaii, the Hawaiian Sugar Planters' Association, the Free Kindergarten and Children's Aid Association, and the Palama Settlement. Dr. Trotter, of the Territorial Board of Health, and Dr. James Judd, of the Medical Society, were especially active in making the institute serve most effectively the needs of the various groups.

There were fifty-three who took the course, including more than half the social workers on the islands. Special addresses were given before the Medical Society, the University Club, the Rotary Club and the Advertising Club. On the island of Mani a general meeting was held for teachers, also a territorial meeting for physicians and workers. At Kauai all the physicians, school authorities and representatives of the administration of the plantations met for an address and conference, and an evening public meeting was attended by a large number of parents and others interested.

The Honolulu Military Academy and the Punahae School are the principal private schools. The latter has a membership of over 700. In both institutions changes were made in the school program on the basis of the results of the investigation made into nutrition conditions. As usual, the more well-to-do classes showed a higher percentage of malnutrition. A complete grade in one of the schools had 42 per cent. underweight for height, as against 36 in the community at large. There was so much interest on the part of parents that a special course of lectures was given to a group of 60 mothers and a private class of 20 children showed excellent results.

The climate of the territory is salubrious, but not enervating. For those who can stand the constant temptation to stimulation through exercise, the outcome is very satisfactory, as has been evidenced by the successful athletes from the islands in our American universities. All land sports, including football, are indulged in and after participation in these there is the call of bathing and water sports. When it is considered that there is no resting season of the year, for even the rainy period does not interfere with sports, the overstimulation resulting in overfatigue counterbalances many of the favorable conditions of life, and the percentage of malnutrition is about the same as is found in many of our cities.

The physiological law of growth calling for a certain range of weight-height relationship was found to apply to the many nationalities found on the islands, including the Filipino, Korean, Hawaiian, Chinese, and Japanese.

On Dr. Emerson's return trip he visited the cities on the Pacific Coast in which the nutrition program had been put in effect last year. In Los Angeles 25 workers gave him a dinner. There are 32 nutrition classes in operation in public and parochial schools, and in orphan asylums. Dr. True and Dr. Locrantz are especially active in the work. A head nutrition worker had just been transferred from Washington to Los Angeles. At San Francisco there are nine classes in the public schools securing good results.

At Denver the organization is very complete. Dr. Emerson spoke at the dedication of an all-the-year nutrition camp for the care of problem cases. This has been established and will be supported by the Junior League.

At Chicago the work continues under the direction of the Elizabeth McCormick Memorial Fund. Among the newer developments are special classes in associated charities, mothers' pensions and colored groups.

AUXILIARY COMMITTEE ON LEGISLATION OF THE MASS. HOMEOPATHIC MEDICAL SOCIETY.

The following doctors have been appointed from the Massachusetts Homoeopathic Medical Society as an Auxiliary Committee on Legislation:

J. W. Crawford, 98½ Main St., North Adams.
Elmer H. Copeland, 168 Elm St., Northampton.
John A. Hunt, 89 Weir St., Taunton.
Charles R. Hunt, 30 Arnold Pl., New Bedford.
Harry D. Handy, Harwich.

E. M. Dolloff, 138 Chestnut St., Lynn.
George E. Percy, 359 Essex St., Salem.
Charles F. A. Hall, 202 High St., Newburyport.
William C. Farley, 9 East Haverhill St., Lawrence.
Robert F. Hovey, 5 Oak St., Springfield.
S. E. Fletcher, 96 Grape St., Chicopee.
Frederick P. Glazier, 12 Lincoln St., Hudson.
Benjamin T. Loring, 186 Mt. Auburn St., Watertown.
A. H. Carvill, 28 Highland Ave., Somerville.
W. H. Flanders, 4 Beverly St., Melrose.
Charles R. Bell, 808 Main St., Waltham.
J. Arnold Rockwell, 23 Garden St., Cambridge.
G. L. VanDeursen, 20 Palmer St., Lowell.
Hollis C. Batchelder, 510 Commonwealth Ave., Boston.
Charles H. Colgate, 16 Webster St., Rockland.
Edward E. Goodwin, 28 Main St., Brockton.
Edward E. Allen, 32 Monument Sq., Charlestown.
Alfred T. Dalrymple, 330 K St., South Boston.
George B. Rice, 293 Commonwealth Ave., Boston.
George D. Bliss, 508 Washington St., Dorchester.
Orville R. Chadwell, 793 Centre St., Jamaica Plain.
Albert E. Cross, 390 Main St., Worcester.
John P. Rand, Holden, Mass.
William H. Bennett, 39 Hartwell St., Fitchburg.
George N. Lapham, Rutland.

THE MEDICAL LIBERTY LEAGUE.

A confusion has existed among some persons as to the application of the title Medical Liberty League. There is an organization under the name of the American Medical Liberty League which has branches in several states, and there is another organization active in this region under the name of the Medical Liberty League. It has been claimed that these organizations are separate and distinct bodies. In making reference to the activities of either of these organizations, these facts should be kept in mind.

WHY NOT MOTOR TO THE AMERICAN MEDICAL ASSOCIATION CONVENTION AT SAN FRANCISCO, JUNE 25 TO 29?

Many motorists in single cars, small parties and motor caravans from various parts of the United States are already in correspondence with the California Headquarters of the Convention.

California is the motorists' paradise. Any part of the state is now easily accessible from anywhere. For those interested in this form of travel, nothing could be more delightful than to combine vacation and pleasure by coming from anywhere to the American Medical Association Convention by motor.

There are four main transcontinental motor road arteries from eastern and midwestern states to California. The Lincoln Highway alone will be traveled by more than 60,000 cars this year. This is the most direct route from New York and Chicago to San Francisco. It passes through Omaha, Cheyenne, Salt Lake City and Reno.

The National Old Trails route is through Kansas City, Trinidad, Colorado, Albuquerque, N. M., Flagstaff, Arizona, Needles, Los Angeles and San Francisco.

The Yellowstone Trail is from Chicago through Milwaukee, Minneapolis, Aberdeen, across Montana, Idaho, and into Seattle or Portland via Spokane or Pendleton, and thence down the west coast into California.

Victory Highway makes good California connections from Denver through Salt Lake City. Salt Lake City is the key position between coast cities and most of the main motor arteries from the eastern and midwestern states. From Salt Lake City motorists can turn north through Pocatello, Idaho, Boise and Walla Walla to Portland, and thence south over splendid boulevard roads into California, or one can turn south at Salt Lake and follow the Arrowhead Trail through Provo, Beaver, St. George, Las Vegas, to the National Old Trail at Goffs, and into Los Angeles, and thence to San Francisco.

There are other good routes leading to the coast and into California. Once in the state of California, the motorist encounters a veritable network of splendid roads leading to all cities and points of interest. If you are interested in this method of transportation to the Convention, write for any information or help of any character.

Address communications to Dr. W. E. Musgrave, California Headquarters, 1923 American Medical Association Convention, 806-809 Balboa Building, San Francisco.

WHY NOT GO TO THE AMERICAN MEDICAL ASSOCIATION CONVENTION AT SAN FRANCISCO BY WATER?

The thought is advanced for those fellows of the American Medical Association in the eastern part of the United States that one very pleasant and attractive way to attend the Convention in San Francisco, June 25 to 29, is to come by boat from any eastern United States port, through the Panama Canal to San Francisco, or come as far as San Diego by boat and make the rest of the trip by train or motor through the beautiful valleys of California.

Details of trips of this kind will be furnished, of course, by any steamship office anywhere, and for those who have the time to spare certainly no more delightful trip could be planned.

It will be easy enough for those who desire to secure their transportation one way by water and the other by rail. A wide latitude in routes crossing the continent will be outlined by any railroad ticket office.

Persons interested in methods of transportation or in any other question of whatever character regarding the convention are invited to write to W. E. Musgrave, Chairman of the California Committee of Arrangements, 806-809 Balboa Building, San Francisco.

Obituary.

AN EXPRESSION OF APPRECIATION
OF THE WORK OF
DR. WILLIAM G. HANSON, BY THE STAFF OF THE WHIDDEN MEMORIAL HOSPITAL.

Dr. William Greene Hanson began the active practice of his profession at Everett in January, 1879. When he died, December 18, 1922, he had completed nearly forty-four years of continuous medical service in one community. For several years, in respect to length of service, he was the senior physician in Everett.

He was born in Boston, November 30, 1857. He graduated from Boston Latin School and took his medical degree from Boston University in 1878, following the completion of his twenty-first year.

He was appointed a member of the Staff of the newly organized Whidden Memorial Hospital in December, 1896, being one of seven Everett physicians appointed at that time. Of this number, only two are now living in Everett. When he died he was president of the hospital staff, having held that position the greater part of his hospital connection. For several years he was one of the representatives of the Everett Medical Society on the Hospital Board of Management, holding this office at the time of his death.

In 1918 he served as school inspector and in the fall of 1918, during the epidemic of influenza, he was physician at the Contagious Hospital. He was a member of both the two Massachusetts State Medical Societies. He enjoyed in a high degree the confidence and respect of his fellow practitioners and in his personal relations was always a loyal, devoted and dependable friend and associate.

As a member of the Staff and Managing Board of the Whidden Memorial Hospital, he gave freely of his time, strength and professional skill for the public good.

As a general practitioner of medicine, he gave forty-four years of his active manhood to the service of the citizens of the town and City of Everett.

Individually, the members of the Staff of the Hospital desire to give public expression to our appreciation of the worth of the long and uninterrupted term of service rendered to the community by Dr. William Greene Hanson and to pay a sincere and heartfelt tribute to the memory of a fellow practitioner who enjoyed for so many years our individual respect, confidence and good will, both as a physician and as a man.

John A. Bruce,
George E. Whitehill,
Henry J. Keaney,
Committee for Staff Whidden Memorial Hospital

RECENT DEATHS.

Dr. Herbert James Hall, a Fellow of the Massachusetts Medical Society, died at Marblehead, February 19, 1923, at the age of 52.

Dr. William Joseph Johnstone, a Fellow of the Massachusetts Medical Society, died at his home in Jamaica Plain, February 13, 1923, aged 59. He was a graduate of Tufts College Medical School in 1896. He was a member of John Bright Lodge, Sons of St. George, and of the American Medical Association.

Dr. Helen Louise Story, a graduate of Tufts Medical School in 1897, is reported to have died at her home in Dorchester, February 15, 1923.

Correspondence

THE AMERICAN SOCIETY FOR THE CONTROL OF CANCER.

Mr. Editor:

It may interest your readers to see a detailed report of the results of the activities of Cancer Week, November 12-18, 1922, in Massachusetts. Twenty cities and towns in the State took part and the officers of the different District Societies of the Massachusetts Medical Society contributed in every way to make a success of this movement in popular health education.

A more determined effort was made this year to obtain the coöperation of the daily and weekly newspapers in Massachusetts, with the result that four hundred and ten news articles and fifty-four editorials were published in the newspapers, aggregating over three thousand inches of space. It is estimated that about three million of the population of Massachusetts were reached by this means, and the Society acknowledges with deep gratitude the cordial coöperation of the press which made this possible.

A further innovation was the employment of radio broadcasting stations at Medford Hillside, Springfield and New Bedford by which about four hundred and fifty thousand radio operators were given opportunity to listen in to an educational talk on cancer. In one of the mill cities talks were given in seven different languages to the foreign-born population, and circulars in foreign languages were given out.

Some four hundred and thirty thousand pieces of literature were distributed in addition to the articles in the daily press.

Three free cancer clinics were given during Cancer Week in Boston at the Massachusetts General Hospital, the Boston Dispensary, and the Huntington Hospital. At these clinics one hundred and eight patients presented themselves for examination; seventy were found to have no evidence of cancer; sixteen had precancerous lesions; seventeen were cases of early and operable cancer; and five were late inoperable cases.

A detailed report follows:

SUMMARY REPORT.

A.	Number of written articles and editorials (Medical Journals, newspapers, etc.)	467
B.	Number of motion picture theatres which coöperated	21
C.	Number of lectures delivered	88
	1. Total number of persons reached by lectures	11,800
	2. Number of audiences before which Dr. Billings' letter was read	500
D.	Number of free cancer clinics held	6

DETAILS OF ABOVE REPORT.

A.	*Written Articles.* Number of news articles	410
	Number of editorials in newspapers	54
	Number of articles in Medical Journals	2
	Number of editorials in Medical Journals	1
B.	*Motion Picture Theatre Coöperation.*	
	Number of theatres in which lantern slides were shown	21
	Number of theatres in which the film "The Reward of Courage" was shown	14
	Approximate number of persons reached through picture theatres	500,000
C.	*Scientific Meetings and Public Lectures:*	

Professional and scientific meetings

	Number	Attendance.
(Medical Societies) (Dentists)	12	1,163
Meetings for medical students	1	300
Meetings for nursing organizations.	5	665
Meetings for nurses in training	7	905
Meetings for Social Service	1	100
Meetings for Rotary, Kiwanis and other civic clubs	4	135
Number of readings of Dr. Billings' letter:		
1. In churches	500	100.000
Number of radio talks given	3	450,000

Very truly yours,
R. B. GREENOUGH,
Chairman Massachusetts Branch.

* * *

NOTICE OF EXAMINATION FOR ENTRANCE INTO THE REGULAR CORPS OF THE UNITED STATES PUBLIC HEALTH SERVICE.

Examinations of candidates for entrance into the Regular Corps of the U. S. Public Health Service will be held at the following-named places on the dates specified:

At Chicago, Ill.	March 12, 1923
At San Francisco, Cal.	March 12, 1923
At Washington, D. C.	March 12, 1923

Candidates must be not less than 23 nor more than 32 years of age, and they must have been graduated in medicine at some reputable medical college, and have had one year's hospital experience or two years' professional practice. They must pass satisfactory physical, academic, and professional examinations before boards of commissioned medical officers.

Successful candidates will be recommended for appointment by the President with the advice and consent of the Senate.

Requests for information or permission to take this examination should be addressed to the Surgeon-General, U. S. Public Health Service, Washington, D. C.

H. S. CUMMING, *Surgeon-General.*

* * *

SOCIETY MEETINGS.

The annual meeting of the Massachusetts Medical Society will be held in Pittsfield, June 12 and 13.

DISTRICT SOCIETIES.

A list of society meetings is herewith published. This list will be changed on information furnished by the secretaries of the societies, and will appear in each issue.

Barnstable District:—Hyannis, May 4, 1923.

Bristol South District:—Fall River, May 3, 1923

Essex North District:—Lawrence, Y. M C. A. Building (Annual Meeting), May 2, 1923.

Meetings of the Suffolk District and the Boston Medical Library, at the Library:

March 28, 1923:—Surgical Meeting. "A Review of What Surgery Can Accomplish in Diseases of the Thoracic Organs, with a Forecast of the Future," Dr. Howard Lilienthal of New York.

April 25, 1923:— Annual Meeting. Election of Officers. "The Record of the Past Twelve Years in Syphilology, with a Forecast of the Future." A series of 10-minute papers. Dr. C. Morton Smith, Boston, will preside.

The Springfield Academy of Medicine meets the second Tuesday of each month. Schedule of speakers includes the following names: Dr. Alexis Carrel, Dr. W. B. Long, Dr. J. W. Williams, Dr. W. S. Thayer, and Dr. Barton Cooke, Hist. The date for each speaker has not been assigned.

Middlesex East District:

March 21, 1923:—Mental Factors in Childhood. Paper by Dr. William Healy.

April 18, 1923:—Interpretation of Laboratory Findings. Papers by Dr. E. G. Crabtree and one to be announced later.

May 9, 1923:—Annual Meeting.

All meetings except the Annual Meeting will be held at the Harvard Club in Boston. A. E. Small, Secretary.

Worcester District meetings are scheduled as follows:

March 14, 1923:—The meeting will be held at St. Vincent's Hospital at 8.15 P. M. The program will consist of a series of papers by members of the staff.

April 11, 1923:—The meeting will be held at Memorial Hospital at 8.15 P. M., and the program will consist of a series of papers by members of the staff.

May 9, 1923:—Annual Meeting and banquet.

STATE, INTERSTATE AND NATIONAL SOCIETIES.

NEW ENGLAND PEDIATRIC SOCIETY:—The following are the dates for meetings the coming season. Each meeting is on the second Friday of the month at the Boston Medical Library: March 9, April 13 and May 11.

March, 1923:—Massachusetts Society of Examining Physicians (date and place undecided); Hilbert F. Day, Secretary.

March, 1923:—Boston Association of Cardiac Clinics. Meeting March 15, 1923, at 8 P. M., Boston City Hospital.

March, 1923:—Boston Medical History Club will meet the third Monday of this month.

April, 1923:—New England Dermatological Society meeting, April 11, 1923, at 3 P. M., in the Surgical Amphitheatre, Boston City Hospital; C. Guy Lane, Secretary. Massachusetts Association of Boards of Health, April 26, 1923, Boston; W. H. Allen, Mansfield, Mass., Secretary.

April, 1923:—Boston Medical History Club will meet the third Monday of this month.

May, 1923:—Massachusetts Society of Examining Physicians (date and place undecided). American Pediatric Society meeting, May 31, June 1 and 2, 1923, at French Lick Springs Hotel, French Lick, Ind.; H. C. Carpenter, Secretary.

May, 1923:—Boston Association of Cardiac Clinics. Meeting May 17, 1923, at 8.15 P. M., Children's Hospital. Subject: Rheumatism and Chorea and Heart Disease.

June, 1923:—American Medical Association, San Francisco, June 25-29, 1923; Olin West, Chicago, Ill., Secretary.

July, 1923:—Massachusetts Association of Boards of Health, July 26, Nantasket; W. H. Allen, Mansfield, Mass., Secretary.

SPECIAL NOTICE

The Boston Medical Library, permanent headquarters of The Massachusetts Medical Society, 8 The Fenway, Boston, desires contributions of books, periodicals, pamphlets, medical photographs and autographs, and whatever relates to medicine. Do not throw away or sell for junk anything of a medical or scientific nature, no matter how worthless it may seem, without first giving the Library the privilege of examination.